

KARL MARX, born 5th May 1818, the son of a Jewish lawyer who became a Christian. Educated at the universities of Bonn and Berlin. He was expelled from Prussian territory in May 1849 and settled in London for the remainder of his life. Head of the International Working Men's Association in 1864. Died in 1883.

CAPITAL

VOLUME ONE



KARL MARX

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TO
THE MEMORY OF MY VERY DEAR FRIEND
WILHELM WOLFF
BOLD AND FAITHFUL CHAMPION OF THE PROLETARIAN CAUSE

Born at Tarnau on June 21, 1809
Died in exile at Manchester on May 9, 1864

INTRODUCTION

KARL MARX'S *Capital* is not an easy book to read. It is difficult in itself, because it deals with a highly difficult and abstract subject-matter, and even more because its method implies, for full understanding, a knowledge of the economic doctrines and philosophical ideas current when it was written. Marx's mind was at once highly abstract and highly critical. He was determined always to penetrate beneath the phenomenal form of things to what he conceived as a reality underlying their appearance; and he thought most naturally by casting his ideas into the form of a criticism of preceding doctrines. Philosophers such as Hegel, economists such as Ricardo, stalk through his pages to the bewilderment of those who approach his work without some prior knowledge of the history of philosophical and economic theories.

This difficulty, considerable enough in itself, was made far greater than it need have been by the poor quality of the translations in which Marx's doctrines were presented to English readers. This did not matter so much in the case of his pamphlets, such as the *Communist Manifesto*; for the general character of their thought was usually too plain for even the worst translation seriously to obscure. But the understanding in England of Marx's larger works, and especially of his greatest work, *Capital*, has hitherto been greatly obstructed by an English version at all points difficult to read, and at some almost unintelligible without reference to the German original.

The present translation, made by Eden and Cedar Paul, finally removes this obstacle, as far as the first, and most important, volume of *Capital* is concerned. For the version here issued to the public is at once faithful and readable. It does say exactly what Marx said, as far as any translation can convey the meaning of an original; and it does read, as far as any translation can read, like an original work. It is a remarkable achievement, on which I cannot forbear to congratulate both its authors and the public. And it is greatly to be hoped that it will be possible for the same

translators to put the crown to their undertaking by rendering into English the later volumes of *Capital*. For these, while they are by no means equal in importance to the part here translated, are in some respects essential to a full understanding of the Marxian doctrine.

The reader of the present translation, however, while he has not Marx's complete work before him, has all of it that was issued in Marx's lifetime, and all that has exerted a widespread influence on European thought. Most people, even most Marxists, when they speak of *Capital*, mean the part of it that is here included. Marxism arose, and spread over Europe to become the inspiration of a developing Socialist movement, long before the posthumous volumes of *Capital* were disinterred from Marx's papers and given to the public by his faithful friend and collaborator, Friedrich Engels. And while there are, as we shall see, some points of Marxian doctrine to which no complete answer can be found in the part of *Capital* here presented, it does contain explicitly by far the greater part of Marxism, and the rest by implication.

Even in this excellent translation, *Capital* is not an easy book to read; and its widespread influence therefore seems to call for some explanation. In part, the explanation is that Marx's influence does not rest on *Capital* alone. Far more people have read the *Communist Manifesto*, and such pamphlets as *Wage-Labour and Capital* and *Value, Price and Profit*, in which Marx gives a brief exposition of certain parts of his doctrine, than have even dipped into *Capital* itself. Moreover, Marx's influence, in his own lifetime, was by no means confined to his writings. He was the active organiser and practical leader of the Socialist movement of his day, as well as its theoretician. Marx expressed himself practically in the International Working Men's Association of 1864—the "First International"—as well as theoretically in *Capital* and the *Critique of Political Economy*.

This practical side of Marxism was, indeed, vital to its influence. Men set out to master Marx's theoretical position, and felt a disposition to accept it, largely because they found themselves carried on the wave of the actual movement of working-class agitation which he had helped to organise and to inspire. This is not to suggest that Marx created this movement, which sprang essentially out of the economic conditions and class-antagonisms of the time;

but he did contribute greatly to giving it form and direction, and those who were drawn into the movement were thus readily induced to consider favourably the doctrines of its chief theoretical interpreter.

Approached from this standpoint, Marxism as a doctrine was—and is—far less formidable than Marxism enshrined in a book. For Marx's fundamental ideas, from this angle, present themselves not as difficult or elusive at all, but as perfectly straightforward and immediate in their appeal. They fit in with the working-class Socialist's experience of everyday affairs, and throw the sanction of a system over the familiar propagandist appeals of his Trade Union or his grumbling fellow-worker at the bench. The notion that the poor man gets less than his due, and that the rich man lives by exploiting the poor, is not at all hard to grasp. There have been poor men who held it—and perhaps rich men too—ever since riches and poverty existed in the world. And what is Marx's doctrine of Surplus Value but an elaborate theoretical formulation of the method by which, in capitalist society, this exploitation takes place?

Nor is there anything hard to grasp about Marx's second idea that "the State is an executive committee for managing the affairs of the governing class as a whole." The idea of "one law for the rich and another for the poor" is also as old as riches and poverty. It did not need Marx to invent the idea of State and law as powers external to the wills and interests of classes excluded from any active part in their administration. Marx formulated this popular notion into a theory of the State; but in this, as in his theory of Surplus Value, he was building on ideas already prevalent, and not at all hard even for the simplest minds to grasp.

These two simple ideas underlie all Marx's thought. But they are conceived, not statically, but throughout in a dynamic sense. Both the economic exploitation and the political domination of class by class appear to him as manifested in a succession of great historical movements. He sees human history as a series of class struggles which are at once economic and political in their character. The opposing classes change again and again in the course of historical evolution; but the struggle goes on, and will go on as long as production and the State are organised on a basis of class differentiation. The struggle between labourers and capitalists, which is the present phase of this evolu-

tionary process, Marx regards as a stage—the last stage—of humanity's march towards a class-less society. The historic mission of the working class—the last class left to be exploited—is, by victory in its struggle with Capitalism, to make an end of classes altogether.

Now, this idea of historical evolution, with the struggle of classes as its *motif*, is in itself a good deal harder to grasp than either the idea of exploitation or the idea of the State as an instrument of class-power. The grasping of it marks the transition from those elementary ideas which are the common stock of popular Socialist agitation to Marxism as a theory. But it is not, and above all it was not, to the more educated workers of Marx's day, really a difficult step. Even before Darwin, the idea of evolution was becoming part of the common stock of thought. It had expressed itself not only in popular science, but also in popular philosophy. Hegel's influence on ideas extended far beyond philosophical circles; and popular geology spread the evolutionary idea long before popular biology came to reinforce it through the writings of Huxley and Herbert Spencer. Men's minds were ready, even if they had never heard of Hegel, for an evolutionary interpretation of human history; and Marx's "inverted Hegelianism," even if its form was not easy, was not in itself difficult to appreciate in its broader aspects.

It is, however, true that, until our own day, popular Marxism tended to stress the simple theory of exploitation, as expressed theoretically in Marx's doctrine of Surplus Value, more than his idea of historical evolution, as expressed in his Materialist Conception of History. Or rather, the latter tended to appear as little more than a rhetorical reference to the "historic mission" of the working class, whereas the former occupied a far more dominant place in Marxian propaganda and exposition.

This situation has now changed, partly as a result of the emphasis placed upon the Materialist Conception of History by the school of Marxists that has made most stir in the world of late—the Communists of Russia—but more fundamentally because the upsets and self-questionings caused all over Europe by the Great War have set men thinking more in historical terms, and made them more intent to find some unifying significance behind the welter of destruction and creation that has come upon them of

late. It is now generally recognised that the Materialist Conception of History is the clue to the Marxian system, and that Marx's other doctrines grouped themselves in his mind round this conception as an organising principle of thought.

One of the chief difficulties in the way of a clear understanding of Marxism is that Marx has nowhere written down any full account of this principle. It is implicit and not explicit in most of his work. In *Capital* it is present throughout in the background, guiding the course of the exposition and imposing itself upon the argument at every stage. But in this book it is never formulated at all. The reader is left to infer it as a consequence of the marshalling of fact and argument round the central analysis of capitalist society. It can be inferred in this way; but *Capital* is an easier book to read if the reader comes to it with some idea of this architectonic conception of its author's already in his mind.

This can best be got from certain of Marx's earlier writings, notably from the *Communist Manifesto* of 1848, and from the *Critique of Political Economy*, published in 1859, eighteen years before the appearance of the first volume of *Capital*. The *Communist Manifesto* applies the Materialist Conception of History to the social and economic struggles of nineteenth-century Europe, and thus shows that it was already the governing principle of Marx's thought almost at the outset of his career; but the *Manifesto*, like *Capital*, does not directly expound the doctrine, but rather implies it. It is in the Preface to the *Critique of Political Economy* that Marx directly explains what is at the back of his mind, and underlies both his criticism of the orthodox economists and his attempt to construct a rival system of his own. As the *Critique* is, in essence, a preliminary sketch of *Capital*, which works out its ideas more maturely and in greater detail, the Preface to the *Critique* may well serve also as a preface to the understanding of the greater work.

The form of the Preface is autobiographical. Marx explains in it how, beginning as a student of jurisprudence and of philosophy and history, he was led to take up the study of economic questions partly by being brought into contact with the earlier schools of French Socialism, and partly by a growing dissatisfaction with the dominant schools of Hegelianism. "I was led," he writes, "by my studies to the conclusion that legal relations and the forms

of the State could neither be understood by themselves nor be explained by what was called the general 'progress of the human mind,' but were rooted in the material conditions of life. . . . The general conclusion which I reached, and which, once I had reached it, continued to serve as the leading thread of my work, may be summed up briefly as follows: Men, in the social production which they carry on, enter into definite relations which are indispensable and independent of their wills; and these relations correspond to a definite stage in the development of their material powers of production. The sum-total of these relations of production constitutes the economic structure of society—the real foundation on which rise legal and political superstructures and to which definite forms of social consciousness correspond. The method of production in material life determines the general character of the social, political, and spiritual processes of life. It is not the consciousness of men that determines their being, but, on the contrary, their social being determines their consciousness."

In other words, Marx had come to hold that the clue to the understanding of history was to be found in the development of the powers of production. Men's overmastering need was to get the means of living; and the ways in which they did this, and the differences in the natural resources at their disposal and in their knowledge of the use of these resources—Man's command over Nature—at different times and places determined not only how the productive system would be organised, but also how man would be related to man in the structure of society, how social classes would be formed, property relations organised, and even how men would think, because the kind and degree of their command over nature would set them the problems that they would attempt to solve. At the bottom of all great historical conditions Marx saw men's power to provide themselves with the means of living; and behind all great historical movements he saw changes in the character and extent of this same power.

Clearly the view—the first principle of the Marxian theory of history—cannot be lightly dismissed. Every anthropologist or sociologist will agree that man's ways of getting their living have a profound effect on the structure of the societies in which they live. Contrasts between the

characteristic social institutions of hunters and fishermen, pastoralists and tillers of the soil, inland plain-dwellers and maritime peoples, are the commonplaces of every modern sociological writer. No one will deny that such great economic discoveries as the steam-engine have revolutionised political as well as economic relationships in the modern world, or that the moment at which the progress of man's command over nature changed the ocean from a barrier into a highway was of vast consequence for the economic, political, and cultural future of the world. It will not, indeed, be so readily admitted that in the changing powers of production lies the sole clue to the development of human history; but their importance as a clue will hardly be gainsaid.

At this point, however, we encounter already a difficulty in the interpretation of Marx's thought. Marx conceived that his view was essentially materialist—an inversion of the idealistic, Hegelian view of reality. But was it? Is it possible to conceive these "powers of production" in purely materialist terms? Coal is nothing to man till he knows how to use it; the sea is barrier or highway according to the skill and courage of those who dwell beside it. What nature provides doubtless limits man's achievement; but nature's provision depends in effect upon man's knowledge. Would Marx answer that man discovers only what nature thrusts under his nose, and is bound to discover what nature does so put before him in nature's due time? Unless that is his view, it is difficult to regard the "powers of production" as a purely material datum. As "powers of production," they are essentially products of the human mind as well as gifts of nature.

Marx, I think, is not at all concerned to deny this. Indeed, the creative rôle of humanity is stressed again and again in his work. But the mind of man appears to him as a social product and as part of the reality which he contrasts as material with the purely ideal reality of the Hegelians. Much of the prejudice against his doctrine comes from a failure to understand this. Marx's materialism is not materialistic in the sense that it excludes the action of mind, but only in that it seeks its reality in this world of man and things, and not in any universe of ideas transcending this world and its limitations.

So far, however, we have reached only the first step in

the statement of Marx's doctrine. The next step brings us a good deal nearer to a comprehensive statement. The Materialist Conception of History is a doctrine, not of being, but of becoming. It sets out to explain not simply why things are what they are, but how they are in process of becoming something else. The "powers of production" are constantly changing as the form and extent of man's command over nature change; and these changes in the "powers of production" call for corresponding changes in economic, political, and social organisation. As the "powers of production" are modified, men need different systems for the organisation of labour, different class relationships, different regulations of property, different forms of government, and, in general, different ways of life and thought. These adaptations, however, are not easily or smoothly made; for each social institution, once established, gathers round it defenders who are reluctant to see it pass away, whose interests are bound up in its continuance. Accordingly, the adaptation of economic, political, and social institutions has a tendency to lag behind the evolution of the "powers of production," and is brought to correspond with it only by the sharp shock of revolution. In Marx's own words, "the material powers of production in society, at a certain stage of their development, came into conflict with the existing relations of production, or—what is but a legal expression of the same thing—with the property relations within which they were previously at work. These relations of production then turn from forms of development of the powers of production into fetters upon them. Then comes the period of social revolution. With a change in the economic foundation of society the entire immense superstructure is more or less rapidly transformed. . . . No social order ever disappears until all the productive powers for which there is room within it have been developed; and new, higher relations of production never make their appearance until the material conditions of their existence have been developed in the womb of the old society."

It is at this point that the form of Marx's doctrine most clearly reveals his Hegelian inheritance. History, for him as for Hegel, progresses by a method of contradiction. Each social system, based on a particular stage in the evolution of the "powers of production," is a thesis, which

calls into being its antithesis. Thus, at the present stage, the capitalist system, as thesis, is compelled, for the development of the very "powers of production" on which it is based, to call into being its own antithesis, the organisation of labour. It must, in order to make the most of its own methods of production, aggregate the workers into factories and factory towns, and subject them to a common discipline which calls into existence the challenge of an organised Labour movement. Capitalism is, at its coming, a forward step in the organisation of the "powers of production." But by and by Capitalism, having done its work, will become a fetter on the development of these growing "powers." The processes of production will need a higher and more closely co-ordinated form of social production than Capitalism is able to supply; and the working class, having learnt solidarity under the capitalist discipline, will be ready to assume the task of creating this higher form of organisation. The capitalists, however, will not give way without a struggle; and out of this contest between capitalist thesis and proletarian antithesis the synthesis of the new classless society will arise. Just as the capitalist class absorbed the old feudal landlords into a synthesis appropriate to the capitalist stage of development of the "powers of production," so in due time the proletariat will absorb the capitalists. But there will be this difference, that there will be no subject class left to exploit. With the victory of the working class, Marx proclaims, "pre-history ends, and history begins."

This Hegelian conception of thesis-antithesis-synthesis expresses itself in Marx as a theory of the historical process working itself out through a series of class-struggles. At each stage of human history, thesis and antithesis are social classes placed in a situation of mutual economic antagonism, and the synthesis is achieved by a new system of class relationships. Marx's theory of history is not only, or primarily, a theory of the dominance of economic factors in the development of society. It is above all a theory of class-struggles as the form in which this "economic determinism" is worked out. This view is clearly stated in the sweeping generalisations of the *Communist Manifesto*; and the historical chapters of *Capital*, in which Marx describes the genesis of Capitalism (Chapter 26) and the evolution, through "manufacture," of the modern system of

machine production (Chapters 12 and 13), are applications of the same method to the study of capitalist society. These historical chapters are easily the most readable, and in many respects the best, in the whole book. They are still the best accounts of the broader developments of capitalist organization, and especially of its growth in the centuries immediately preceding the Industrial Revolution of the eighteenth and early nineteenth centuries.

Marx's Materialist Conception of History has been often misunderstood. As will be seen from the foregoing account, it has nothing whatever to do with any psychological theory of the motives which guide the actions of individual men. Marx does not say, as some have represented him as saying, that men act only from economic motives, or solely with a view to securing their own advantage or pleasure. His view has nothing in common with any kind of economic Benthamism. It does not deal at all with the question of human motives. What Marx urges is that the broad transformations of society from epoch to epoch arise from economic conditions, in a wide sense, and that men, from whatever motives they act, are in fact and in the mass guided in what they achieve by these conditions. The development of the "powers of production" sets them their problems; and "mankind always takes up only such problems as it can solve." Often, men fight out their conflict in "ideological forms" which serve to conceal its real character; but these forms have to be "explained from the contradictions of material life, from the conflict between the social powers of production and the existing relations of production." In other words, an individual man may think as he pleases, or act from what motives he pleases, within the limitation that he cannot escape from the ideas and problems set him by his time; but the ideas that become forces in world evolution are those which can contribute to the development of the "powers of production", and to the adjustment to these powers of the economic and social relations existing among men.

This conception is the clue to the rest of Marx's thought. His theory of Surplus Value, and his criticism of the classical economists of his own day, are but workings-out of it in the particular sphere of contemporary economic theory. The arrangement of his book, however, serves to conceal this from his readers, and to make the drift of his

argument unnecessarily hard to understand. For *Capital* opens, not with an account of Marx's theory of history, but with ten chapters devoted mainly to the detailed exposition of his theory of value.

For the modern reader who approaches Marx in any spirit save that of blind acceptance, these chapters are extraordinarily hard to understand. They cannot, in fact, be fully understood except in relation to the doctrines of those classical economists with whom Marx is always eager to break a lance. At the outset, Marx's main thesis in them appears to be that the "value" of commodities depends exclusively upon the amount of labour involved in their production. This labour, however, is not the labour of this or that particular kind of craftsman, but an abstract undifferentiated human labour which has as little regard for the qualities of different men as the conception of "horse-power" has for that of individual horses. All actual labour, it is argued, can be resolved into so much of this abstract labour, skilled labour counting as a multiple of it, so that an hour's labour of a skilled craftsman may count for, say, two hours of abstract labour. Secondly, the "amount of labour" that enters into the "value" of commodities is not the actual amount expended on the production of each commodity, but the amount that is "socially necessary"—the amount required to produce the commodity under the average conditions prevailing at the time and place in question. The socially necessary amount of this abstract labour is the sole factor that can influence the value of any commodity.

All this Marx says, and much of the modern criticism of Marxism is directed to showing that this view is wrong. But it is important to observe that not one single idea in this theory of value was invented by Marx, or would have been regarded by him as an original contribution of his own to economic science. Marx merely took over this conception of value from the classical economists, omitting no doubt certain ambiguous refinements in their doctrine, but broadly repeating what they had said, and what most economists of the earlier nineteenth century implicitly believed. There is nothing specifically Marxian about Marx's theory of value; what is novel is the use to which he puts the theory, and not the theory itself.

The contribution of Marx to the theory of value is not

the idea that "labour is the sole source of value," but the conception of Surplus Value which he derives from it. The classical economists had held broadly, first, that the value of commodities depends on the amount of labour incorporated in them, and secondly, that the wages of labour tend always to subsistence level. Out of these two ingredients of the classical doctrine Marx compounds his doctrine of Surplus Value. Adam Smith, Malthus, and Ricardo had all put forward, in different ways, a subsistence theory of wages; and, in the two latter at least, this doctrine had been closely linked up with a theory of population. Wages must tend to subsistence level because, if they were above it, the population would increase, and the competition of more labourers for employment would thus tend to bring them back to it. It was, indeed, admitted that, in a society advancing in prosperity, wages might remain long enough, because of an increasing demand for labour, above an established level of subsistence to enable the labourers to incorporate a new and higher level in their standard of life. Subsistence level might thus change; and it was recognised as possessing always a conventional element. But, with this reservation, the wages of labour were assumed to bear a fixed relation to the price of the necessities of life.

This doctrine, together with the "labour theory of value," Marx takes over from the classical economists. But he draws from them both conclusions widely different from theirs. Of all the "factors of production," labour—including brain-work as well as manual work—is alone creative. The materials used up in production, the instruments of production—all things except labour-power that capital can buy—create nothing. They can only transfer to the final product unchanged the value of the labour already incorporated in them. The labourer, on the other hand, produces more than is necessary for his subsistence. But he is paid only enough to enable him to subsist and to reproduce his kind. The rest of his product passes to the capitalist who has bought his labour-power for a subsistence wage. This surplus over and above the cost of the labourers' subsistence is Surplus Value, and is the source out of which rent, interest, and profits are paid. It arises because the labourer, divorced from direct access to the land or other means of production, cannot realise directly the value of his productive power, but can only sell his labour-power to

a capitalist in order to get the means of life. The existence of a working class, thus divorced from the means of production, is essential to the existence of capitalism; and the genesis of this class is also the genesis of capitalist society.

Why does this Surplus Value exist at all, or, in other words, how does it come about that the labourer is able to produce a value in excess of the cost of his subsistence? Marx's answer is that the surplus is due to the economic benefits of co-operation and the division of labour. A number of men working together as a group can produce far more than the same number working in isolation. But they can thus work together only if they can provide themselves with a growingly expensive equipment of productive instruments. This the property-less man cannot do; but the capitalist can do it for him, and is thus enabled to appropriate, as Surplus Value, the entire increment of productivity due to the co-operative use of labour. The labourer is paid the value of his individual labour-power in terms of subsistence; the capitalist gets all that is over and above this, and the surplus is, in view of the growing productivity of labour, an ever-increasing magnitude.

These are the essential elements of the Marxian doctrine of Surplus Value. Marx's critics have seldom attacked directly this part of his theory. They have preferred to concentrate their attack on the Labour Theory of Value, which he took over practically unaltered from the classical economists, rather than on the theory of Surplus Value, thinking doubtless that, if the foundations were destroyed, the whole structure would certainly collapse. It is, however, fully possible to hold the theory of Surplus Value without holding the Labour Theory of Value on which, superficially, it appears to depend.

By all economists save the Marxists, the Labour Theory of Value has long been discarded. How it came to be discarded I can best explain if, for the moment, I may leave Marx and Marxism aside altogether. In the classical economists, the Labour Theory of Value was definitely at the same time a theory of price. Ricardo and his followers were seeking for a principle underlying the relative prices of different commodities in the market. They realised that market prices might change, not only with monetary conditions, but in accordance with the daily fluctuations of supply and demand. But they held that, as monetary

changes would tend to react equally on all prices, they could be ignored in considering the laws of value, and that, underlying the constant fluctuations of supply and demand, there must be some natural value to which the market price of any commodity would tend to return when supply and demand were in normal equilibrium. This natural value, they thought, must be something intrinsic in the commodity itself, or at any rate something derived directly from its conditions of production. The one quality common to most commodities seemed to be that of being products of human labour; and accordingly, with varying reservations, they adopted the view that the relative values of commodities in exchange were determined, subject to temporary market fluctuations, by the amount of labour incorporated in them.

This view, however, as a theory of prices, could not survive the test of practical application. It was evident that the whole cost of producing a commodity equally influenced the conditions of its supply, and that, as soon as commodities were produced with different "compositions of capital," so that some were made mainly by labour directly, while others involved the use of expensive machinery and a considerable lock-up of fixed capital for their production, their prices, as determined by supply conditions, could not depend solely on the amount of labour incorporated in them. Ricardo, in two extraordinarily muddled chapters, attempted to confront this difficulty, only to give it up later (in his *Correspondence*) as a bad job. His successors, especially John Stuart Mill, attempted to restate the theory as a "cost of production," or "price of production," theory, in which, no longer the amount of labour, but all the money costs of production ranked as the determinants of normal or natural price or value. Then came Jevons, who sought a way out of the confusion by shifting the emphasis from the conditions of supply to those of demand, and representing the values, or prices, of commodities as measured in all cases, not by "amount of labour," or "price of production," but by their "utility" to the consumer, expressed in the prices which he was prepared to pay for them. According to this view, the price which the consumer would pay for the last 'dose' brought—the 'marginal utility'—measured the value.

Jevons had, indeed, to recognise that there were condi-

tions of supply as well as of demand to be taken into account. Buyers could not buy unless sellers were willing to sell; and there were thus "marginal supply prices" below which producers would not go as well as "marginal demand prices" which buyers would not exceed. Among English economists, it was left for Alfred Marshall to restate the new theory in terms of an unstable equilibrium between the two. At different prices, suppliers would supply, and consumers purchase, different amounts. Actually, prices would settle round the points at which the quantities sellers would sell, and consumers buy, tended to coincide. In effect, Marshall hedged. Prices, he held, were determined in the short run more by demand than by supply, and in the long run more by supply than by demand.

All modern theories—if we may still leave the Marxists aside for the moment—are very far removed from the "amount of labour" theory which Marx took over from Ricardo and McCulloch. How, then, does it happen that the Marxists have gone on for quite half a century reaffirming Marx's view, and wholly unshaken by all the criticism that orthodox economists have been able to bring against them? The answer, paradoxical as it may seem, is that Marx's theory in no way contradicts Marshall's, because it is not a theory of the determination of market prices. When Marx says that the value of commodities depends absolutely on the amount of socially necessary labour incorporated in them, he does not say that their market prices depend upon this. The reader of the present volume of *Capital* will, indeed, unless he reads with exceptional care, be apt to conclude that this is what Marx means; for he speaks usually as if commodities had actually a tendency, subsequent to temporary market fluctuations, to exchange at their "values." But he says explicitly (on page 79) that he does not mean this; and in the third volume of *Capital* he fully develops his point, and makes the inevitable divergence of prices and "values" abundantly clear.

It is necessary, in order to elucidate this point, to retrace some of the steps of our argument. Marx, we have seen, has contended not only that the value of commodities is measured solely by the amount of labour incorporated in them, but also—which is not the same thing—that the sole agent creative of value is human labour. Now, of the capital applied to production, a part is spent in buying

labour-power, and another part in buying the materials and instruments of production. Marx holds that only the former part of the capital is creative of value, and that the latter part can only transfer to the final commodity the value already created by the labour which produced the material or the instrument of production. Capital, as we have seen, engenders surplus value because it is able to buy labour-power for less than labour, when expended, can produce. But only capital spent in buying labour-power can engender this value. Capital spent on materials or machinery has no such potency. Accordingly, Marx calls the capital expended in buying materials or machinery *Constant Capital*, because it only transfers its value unchanged to the finished commodity, whereas he calls capital spent in buying labour-power *Variable Capital*, because it has the potency of yielding a surplus to its owner.

This distinction, as it is expounded in the present volume of *Capital*, exposed Marx to formidable attacks. If he were right, it was urged, it ought to pay capitalists best to employ as much labour and as little machinery as possible; for by doing so they would keep most of their capital in the "variable" form, and thus tend to realise for themselves the greatest amount of Surplus Value. In fact, however, it certainly pays capitalists to employ labour-saving machinery, though in doing so, on Marx's showing, they reduce the proportion of their total capital out of which Surplus Value can possibly arise.

Marx's answer is twofold. In the present volume he replies in terms of the subsistence theory of wages and of the temporary advantage of the particular capitalist who first applies machinery to production. Such a capitalist, it is pointed out, is able to secure a greater product in return for a given expenditure of labour. Until his competitors have adopted productive methods as good as his own, he is able to sell his wares for more than he needs in order to recoup him; for their prices continue to be determined by the average methods of production in use in the trade. Each individual capitalist has therefore an incentive to introduce new machinery in order to reap this advantage; and, when he has done so, his competitors are compelled to follow suit. Moreover, every labour-saving device that reduces the value, or production cost, of the means of subsistence, tends also to reduce the cost of labour's

subsistence, and therefore the wages of the labourer. Thus, less of the working day is spent by the labourer in providing for his own subsistence, and more in creating Surplus Value for the capitalist. In Marxian language, the rate of Surplus Value is increased by adding to the Relative Surplus Value created.

This answer, however, is not complete. For the benefit of the cheapening of the means of subsistence, and therefore of wages, would redound to the advantage of all capitalists equally, and would thus leave unchanged the disparity of Surplus Value between those capitalists who used a high or low proportion of Constant, and a low or high proportion of Variable, Capital. The yield of Surplus Value to different capitalists will still remain widely different, according to the different compositions of their capital. What then? Surely capitalists will rush into the occupations which, because of their high proportion of Variable Capital, have the tendency to yield the greatest Surplus Value, and will rush away from those occupations in which the opposite conditions exist.

This, says Marx, is precisely what will happen, until the competition of capitalists in the more desirable occupations, and the dearth of competition in the less desirable, brings profits on total capital (constant and variable together) down or up to a common standard. Profits have a tendency to equalisation in all employments (here again Marx is merely echoing the classical economists); and by this equalisation the Surplus Value realised by the exploitation of labour will be redistributed among the whole body of capitalists in proportion to the total magnitude of their invested capital.

But how does this readjustment take place? It can occur only through the instrumentality of prices. In order that the profits of the more favourably situated capitalists may fall to the average, competition must reduce the prices they are able to charge.

If, however, prices are to serve as the means of redistributing Surplus Value, they can have no tendency even to coincide with "values" based upon the amount of labour incorporated in each commodity. It is, Marx agrees in volume three, a mere accident if, in a particular case, price and "value" happen to coincide.

Of what, then, is the Marxian theory of "value" a theory,

If it is not a theory of price? Marx's answer to this question, developed in volume three, is, on the face of it, utterly paradoxical. There is, he says, in the last resort no such thing as an isolated and separate commodity, or branch of production. Capitalism is essentially associated and co-ordinated production, based on enlisting the forces of labour co-operation on the side of capitalist Surplus Value. It is all nonsense to claim for the individual labourer any "right to the whole produce" of his labour; for his labour has no product. It is inextricably mingled with that of countless other workers. Similarly, it is impossible to isolate the product created in any factory, or any branch of capitalist production. In essence, there is but one product, but one gigantic associated capitalist, and but one many-handed labourer yoked to the task of creating Surplus Value. Prices of individual commodities are but devices by means of which the capitalist class shares the swag. The amount of labour incorporated in production measures finally the "value," not of this or that particular commodity, but of the social product as a whole.

Here, yet again, Marx's Hegelian affinities stand out clearly. The One is, for him, more real than the Many; and he is always reaching out after a real Oneness underlying the phenomenal multiplicity of the capitalist world. He envisages a working class, which he had attempted to organise in the International Working Men's Association, in process of becoming one, and he sees the capitalists of the world as banded together against the working class. This oneness alone is real. The prices of individual commodities are mere appearances. What is real is the one fact of exploitation—the appropriation by the capitalist class of the economic advantages of associated production. The "detail labourer" is a mere abstraction; not individuals, but only social classes, possess ultimate reality.

It is impossible thoroughly to understand Marx's thought without appreciating this mystical view of reality. Marx's view of history made him regard social classes as far more real and creative than individual persons. The theme of *Capital* is not the exploitation of individual labourers by individual capitalists, but of one whole class by another. He who would criticise Marx must begin by either accepting or attacking this fundamental concept. It conditions the entire Marxian system.

It also makes that system very difficult to attack by any ordinary method of criticism. For if "values" in the Marxian sense have no tendency to coincide with prices, what is to be said? It cannot be demonstrated, by any argument drawn from the realm of prices, that "values" do not depend on the amount of labour incorporated in the commodities. It may be urged, with force, that there is no valid reason for erecting this concept of "value," as apart from price, at all, and that the entire Marxian theory is, on this point, a useless construction in the air, due to historical conditions, and certainly not worth preserving to-day. As far as Marx's theory of value in itself is concerned, I am disposed to agree with this view; for I feel quite sure that Marx would never have constructed a theory of "value" unrelated to price unless he had begun by criticising a false theory of value as related to price that was prevalent among the classical economists of his own day.

If, however, we abandon the Marxian theory of value, does Marx's theory of Surplus Value, which was his distinctive contribution to economic doctrine, therefore fall to the ground? I do not think it does, though much in the manner of its expression will obviously need to be modified. For the theory that the measure of the relative values of commodities is to be found in the amounts of labour incorporated in them has really nothing to do with the other theory that labour, by hand or brain, is the sole positive agent in the creation of wealth, and that the owners of capital are able, by virtue of their ownership, to appropriate to themselves a large part, if not the whole, of the surplus product due to the economic advantages of associated production. This is the true foundation on which the theory of Surplus Value rests; and it brings into relief the close relationship of the theory to Marx's doctrine of history. These two theories may be accepted or rejected; but it is pertinent to point out that neither of them stands or falls with the "Labour Theory of Value," and that they, and not the "Labour Theory of Value," are the active principles of Marxian doctrine in the world to-day.

G. D. H. COLLIER

OXFORD,

October 1929.

WORKS.

MARX'S first work, written in conjunction with Friedrich Engels, was *Die heilige Familie oder Kritik der kritischen Kritik* (Frankfurt), 1845; and three years later they collaborated in the publication of the famous *Manifest der kommunistischen Partei*, 1848, authorised English trans. 1888.

The independent works of Marx include *La Misère de la Philosophie* (Paris), 1847, 1896; trans. as *The Poverty of Philosophy* by H. Quelch, 1900; *Der achtzehnte Brumaire des Louis Bonaparte*, 1852; trans. as *The Eighteenth Brumaire of Louis Bonaparte* by D. de Leon (New York), 1898, by Eden and Cedar Paul (London), 1928. *Entwürfe über den Kommunisten-Prozess zu Köln* (Basel), 1841; *Zur Kritik der politischen Ökonomie* (Berlin), 1859, 1907; Herr Vogt (London), 1860; *Das Kapital: Kritik der politischen Ökonomie*, Volume I (Hamburg), 1867; Volume II appeared posthumously, being arranged and edited from the notes of Marx by Friedrich Engels, 1885-85; Volume III, 1890-1894.

Translated into many languages, including French, Spanish, Italian, and Russian, *Das Kapital* was trans. from the 3rd German edition as *Capital: a critical analysis of capitalistic production*, by S. Moore and E. A. Aveling, 1887, 1896; from the 4th German ed. by E. and C. Paul (London), 1928. Vol. II was trans. from the 2nd German ed. by E. Untermann (Chicago), 1907; Vol. III by the same translator from the 1st German ed. (Chicago), 1907. *The People's Marx* is an abridged popular edition compiled by Julian Borchardt and trans. by Stephen L. Trask (printed Potsdam), 1921; *The Student's Marx*, an introd. to the study of *Capital* by E. B. Aveling, appeared in 1892.

The Civil War in France, 1871 (London), 1871; new ed. with hist. introd. by R. W. Postgate, 1921; *Lohnarbeit und Kapital*, written about 1843, was pub. in Berlin in 1891; trans. as *Wage-Labour and Capital* by J. L. Joynes, 1883; by Florence Baldwin, 1923. *Die Klassenkämpfe in Frankreich, 1848-1850* (Berlin), 1895; trans. as *The Class Struggles in France*, by Henry Kuhn, 1924.

Three pamphlets reprinted and edited by Eleanor Marx Aveling are *Value, Price, and Profit*, an address to working men, 1898, 1908; *The Secret Diplomatic History of the Eighteenth Century*, 1899; *The Story of the Life of Lord Palmerston*, 1899.

Selected Essays, trans. by H. J. Stenning, appeared in London in 1905.

A great many of Marx's writings appeared as articles in the Press of Germany, Belgium, France, England, and America, his journalistic career commencing when he undertook the editorship of the *Rheinische Zeitung* in 1842. Later he wrote for the *Deutsch-Französische Jahrbücher* in 1844; *Das Westphälische Dampfboot*, 1845; *Der Gesellschaftsspiegel*, 1846; *Deutsche Brüsseler Zeitung*, 1847; *Neue Rheinische Zeitung*, 1848; *The People* (London), 1852; *The New York Press*, 1856; *The Free Press* (Sheffield and London), 1856; *Der Volkstaat*, 1869; *Die Neue Zeit*, 1883; *Sozialistische Monatshefte*, 1895.

LETTERS.

Briefe und Auszüge von Briefen von Karl Marx und A. an F. A. Sorge, 1906; *Der Briefwechsel zwischen Fr. Engels und Karl Marx, 1844-1883*, 4 vols., 1903.

BIOGRAPHICAL AND CRITICAL WORKS ON MARX.

Consult, for fuller understanding of the theories and life of Marx, the following authors: Rt. Hon. Geo. N. Barnes, *Karl Marx*, 1909; K. von Boshm-Bawerk, *K. M. and the Close of his System* (New York), 1898; Max Beer, *A Guide to the Study of Marx*, 1924; and *The Life and Teaching of K. M.*, 1921, 1924; Louis B. Boudin, *The Theoretical Systems of K. M. in the Light of Recent Criticism* (Chicago), 1907; Benedetto Croce, trans. by C. M. Meredith, *Historical Materialism and the Economics of K. M.* (Chicago), 1924; Max Eastman, *Marx, Lenin, and the Science of Revolution*, 1926; F. J. Gould, *Labour's Unrest and Labour's Future*, 1919; H. M. Hyndman, *The Economics of Socialism*, 1922; Horace W. B. Joseph, *The Labour Theory of Value in K. M.*, 1923; Harold J. Laski, *K. M.*, 1922; Rt. Hon. John A. M. Macdonald, *K. M. and the Present Unrest*, 1912; Maurice E. Paul, *K. M. and Modern Socialism*, 1910; O. Rühle, *K. M., his life and work*, 1919; D. B. Ryazanov, *K. M. and Fr. Engels*, 1927; and *K. M., man, thinker, and revolutionist*, 1927; Frank R. Salter, *K. M. and Modern Socialism*, 1921; John W. Scott, *K. M. on Value*, 1900; V. G. Simkhovich, *Marxism versus Socialism*, 1913; John Spargo, *K. M., his life and work*, 1910; H. Watson, *The Philosophy of Marx*, 1921; E. H. Carr, *Karl Marx*, 1934.

See also Ernest Dahn, *Marx-Bibliographie*, 1900; and W. H. Emmett, *The Marxian Economic Handbook and Glossary*, 1925.

TRANSLATORS' PREFACE

This translation has been made from the fourth German edition of *Das Kapital*, Book One, *Der Produktionsprozess des Kapitals*. Published in 1890, seven years after the author's death, that edition was revised by Engels, and is the definitive form of the original text. Subsequent German editions have been mere reprints. Occasionally we have referred to M. J. Roy's French translation of 1873, an especially important version inasmuch as the title-page informs us that it was revised throughout by the author. As regards certain points of special difficulty, we have also referred on several occasions to the standard Russian translation. Of course Moore and Aveling's translation, which appeared in 1886, and J. B.'s translation of the first nine chapters (Bellamy Library) have not been ignored; the former, in particular, deserved close study, seeing that it was published under the auspices of Friedrich Engels. That translation, however, was made from the third German edition of *Das Kapital*. In the present version we have throughout relied upon the definitive German text as final arbiter.

Those interested in the story of the various editions will find details in the prefaces which we have relegated to an appendix. In many respects their interest is now chiefly historical, and we felt that readers of the new translation would like to come as soon as possible to the author's main text.

Two matters call for special explanation: style and terminology.

As regards the former, the translators of Marx have only a choice of evils. He was a polyglot, and his writings bristle with foreign interpolations into an otherwise extremely lucid German. In *Das Kapital* his extensive quotations are often given in the original language, but are sometimes translated into his mother tongue. Stylistically, no doubt, it would have been better to translate only from the German, and to leave in Greek, Latin, Italian, French, etc., what the author chose to give in those various mediums. Another possibility would have been to reproduce the

polyglot originals, and to add in each case an English rendering. But this would have been ponderous, and would have swelled a bulky text and voluminous notes immoderately. We have therefore accepted the only remaining alternative, and have translated everything. As readers of *Æsop*, familiar with the fable of the Old Man, his Son, and the Donkey—we are aware that we cannot expect to please Everyman—and his father! If we satisfy those numerous persons who have not made a specialty of Hegelitics, and who think that the main business of a translator is to translate, we shall have gained our end.

Marx is often supposed to be a difficult writer. He is not. But he writes on difficult subjects. One reason for the prevalent opinion has now been dealt with. Another, and a weightier, reason is the crux of terminology. Though extremely precise, he was not much inclined to define his concepts in set terms. For instance, the present treatise on capitalist production does not contain a formal definition of "capital", although the essence of what Marx has to say involves (as does so much of his terminology) a use of the word which contrasts in many respects with what other economists mean by it—or amplifies what they mean by it. The fact is that the whole book is his definition, though the book is not his whole definition, since the definition was continued in the posthumous volumes that also bear the title of *Das Kapital*, and in those (really part of *Das Kapital*) which bear the title of *Theorien über den Mehrwert*. . . . "Theories of Surplus Value". Readers should therefore note that the work now issued comprises "Book One" of a more extensive scheme. The occasional forward references to other "Books" are to matter which was never finally revised by Karl Marx. The present volume contains the whole of what most people mean when they speak of "Marx's Capital".

Chary though Marx is of definitions, he does define a good many terms. Such terms have usually been italicized where the definition occurs, and a list of them will be found under the caption "Definitions" in the Index.

The main difficulty as to Marxian terminology will have been surmounted by those who grasp the significance of "value", "exchange-value", and "use-value", as employed by Marx. The definition of these terms emerges from a careful study of Chapter One, "Commodities and Money". This is

the only really difficult chapter in *Capital* (*Capitalist Production*), and those who have mastered it will understand all the rest with ease. Persons beginning the study of Marxian economics by reading the present book may be helped by the explanation that in this opening chapter Marx is contemplating the highly abstract entity "value", sometimes predominantly as the "substance of value", and sometimes predominantly as the "magnitude of value"; that he looks upon exchange-value as the "form of value" or "value form", as contrasted with the "substance of value", i.e. "value" proper; and that there is nothing distinctively "Marxian" in the sense he attaches to the term "use-value", which means for him exactly what it means for other economists, value-in-use, a "good", something which "satisfies a want". For the rest, he means two very different things when he speaks of "value" and when he speaks of "exchange-value", although certain highly distinguished exponents of Marxism have declared the terms to be synonymous. The difficulty has arisen because in an earlier work, *Zur Kritik der politischen Ökonomie* ("Critique of Political Economy"), 1859, Marx throughout used the term "exchange-value" in the sense which subsequently, in *Capital*, he came to attach to "value". He inverted his terminology. Hence these tears. But the usage of *Capital* supersedes, once for all, the usage of the *Critique*.

Concerning this matter, consult W. H. Emmett's *The Marxian Economic Handbook and Glossary* (George Allen & Unwin, 1925), a book which though written for use with Moore and Aveling's translation, will be found extremely valuable by readers of this new version. The ideal introduction to Marxian study has yet to be written. But Emmett's book makes a good beginning.

A minor, but still important, terminological difficulty concerns the use of the words "manufacture" and "manufacturer". As Marx himself says in the present work (footnote to p. 213), perfect consistency in the use of terms is not attainable in any science; but needless confusion must be avoided. The word "manufacture" came into use in this country to describe the system of manual commodity production characterised by the division of labour, the system that replaced production by the craft guilds. When, in the course of the industrial revolution, power-driven machinery came to play a predominant part in

production, the word *manufacture* was still used to describe the productive process, and to-day it is mainly used to describe certain kinds of production that are aided by steam or electric power. A "manufacturer" was at first either the worker engaged in manufacture in the earlier sense, or else the entrepreneur organising and carrying on such manufacture. Nowadays an entrepreneur producing commodities on a large scale by power-driven machinery with the aid of associated labour is usually spoken of as a manufacturer. But much of the earlier part of *Capital* deals with the transition from manufacture proper to production by power-driven machinery, and Marx avoids speaking of the latter as "manufacture". He distinguishes throughout between the system of manufacture, and the system to which in this English version we give the name of "machinofacture". He never calls the entrepreneur engaged in machinofacture a "manufacturer", but always a "Fabrikant", which we have rendered "factory owner". These explanations would be superfluous, were it not that in the quotations with which *Capital* abounds, and which are mainly from English sources, the words "manufacture" and "manufacturer" are used in varying senses which sometimes conflict with the main text.

In conclusion we should like to warn readers who may make a cursory comparison between the table of contents of this new version and that of Moore and Aveling's translation, against hastily concluding that there are extensive differences in the subject matter. It is true that the English rendering of 1886 is divided into eight parts, and subdivided into thirty-three chapters, whereas the new translation contains only seven parts and twenty-five chapters. This is merely because, in the later editions of *Das Kapital*, certain chapters were degraded into mere sections of chapters, while Part Eight of the original work, entitled "So-called Primary Accumulation", was reduced to the status of the penultimate chapter in Part Seven, "The Accumulation of Capital". As a reference to the prefaces in the Appendix will show, there are no fundamental differences between earlier and later editions of the book.

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PART ONE
COMMODITIES AND MONEY

CHAPTER ONE

COMMODITIES

1. THE TWO FACTORS OF A COMMODITY: USE-VALUE AND VALUE (SUBSTANCE OF VALUE, MAGNITUDE OF VALUE).

THE wealth of societies in which the capitalist method of production prevails, takes the form of "an immense accumulation of commodities",¹ wherein individual commodities are the elementary units. Our investigation must therefore begin with an analysis of the commodity.

A commodity is primarily an external object, a thing whose qualities enable it, in one way or another, to satisfy human wants. The nature of these wants, whether for instance they arise in the stomach or in the imagination, does not affect the matter.² Nor are we here concerned with the question, how the thing satisfies human want, whether directly as a means of subsistence (that is to say, as an object of enjoyment), or indirectly as a means of production.

Every useful object, such as iron, paper, etc., must be regarded from a twofold outlook, that of quality and that of quantity. Every such object is an assemblage of numerous properties, and may therefore be useful in various ways. To discover these various ways, and thus to find out the manifold uses of things, is a work of time.³ Time is likewise needed for the discovery of social standards

¹ Karl Marx, *Zur Kritik der politischen Ökonomie*, Berlin, 1839.

P. 4.

² "Desire implies want; it is the appetite of the mind, and as natural as hunger to the body; . . . the greatest number [of things] have their value from supplying the wants of the mind." Nicholas Barbon, *A Discourse on Coining the new Money Right*, in *Answer to Mr. Locke's Considerations*, etc., London, 1696, pp. 2-3.

³ "Things have an intrinsic virtue [this is Barbon's specific term for use-value], which in all places have the same virtue; as the loadstone to attract iron" (*op. cit.*, p. 18).—The property of the magnet which enables it to attract iron did not become useful until it had led to the discovery of magnetic polarity.

of measurement for the quantity of useful objects. The variability of the quantitative standards by which commodities are measure, is partly dependent upon the varying nature of the objects to be measured, and partly upon convention.

The utility of a thing makes it a use-value.¹ But this utility is not a thing apart. Being determined by the properties of the commodity, it does not exist without them. The commodity itself, such as iron, wheat, a diamond, etc., is therefore a use-value or good. Its character in this respect is independent of the amount of human labour required for the appropriation of its useful qualities. In the consideration of use-values, their quantitative determination is always taken for granted, as when we deal with watches by the dozen, linen by the yard, iron by the ton, and so on. The use-values of commodities form the topic of a special study, the science of commodities.² Use-value is only realized in use or consumption. Use-values comprise the material content of wealth, whatever its social form may be. In the form of society we are about to examine, they constitute likewise the material depositories of exchange-values.

Exchange-value shows itself primarily as the quantitative ratio, the proportion, in which use-values of one kind are exchanged for use-values of another kind,³ a ratio continually varying with changes in time and place. Exchange-value thus seems to be something fortuitous and purely relative, and an exchange-value immanent in commodities (intrinsic value) would consequently appear to be a con-

¹ "The natural worth of anything consists in its fitness to supply the necessities or serve the conveniences of human life." John Locke, *Some Considerations on the Consequences of the Lowering of Interest*, 1692; Works, London, 1777, vol. II, p. 28.—In the seventeenth century, many English authors continued to write "worth" for "use-value" and "value" for "exchange-value", this being accordant with the genius of a language which prefers an Anglo-Saxon word for an actual thing, and a Romance word for its reflection.

² In bourgeois society the "legal fiction" prevails that every person, as buyer of commodities, has an encyclopaedic knowledge of them.

³ "Value consists in the ratio of exchange between one thing and another, between a given quantity of one product and a given quantity of another." Le Trostre, *De l'échange social*, Paris, 1896, p. 889.

tradition in terms.¹ Let us look into the matter more closely.

A certain commodity, such as a quarter of wheat, can be exchanged for x blacking, y silk, z gold, etc. In a word, it can be exchanged for other commodities in varying proportions. The wheat, therefore, has numerous exchange-values instead of only one. Since, however, x blacking, y silk, z gold, etc., each represents the exchange-value of one quarter of wheat, it follows that x blacking, y silk, z gold, etc., must be mutually interchangeable, must have equal exchange-values. From this we infer: first, that the valid exchange-values of a commodity are equal one to another; and, secondly, that exchange-value must be the mode of expression, the "phenomenal form", of something contained in the commodity but distinguishable from it.

Now let us take two commodities, such as wheat and iron. Whatever the ratio of exchange may be, it can always be represented by an equation in which a given quantity of wheat is equated with some quantity or other of iron. For instance, our equation may read: one quarter of wheat = x cwt. of iron. What does this equation mean? It tells us that in two different things, namely in one quarter of wheat and in x cwt. of iron, there exists in equal quantities something common to both. They are, therefore, equal to a third something, which differs in essence from them both. Each of them, in so far as it is exchange-value, must be reducible to the third.

A simple geometrical illustration will make this clear. When we wish to ascertain the areas of rectilinear figures, and to compare these one with another, we subdivide them into triangles. The area of a triangle is itself determined by reduction to something very different from the visible shape of the triangle, namely to a rectangle whose area is the altitude of the triangle multiplied by half the base. In like manner, the exchange-values of commodities must be reduced to expressions of something quantitative which is common to them all.

This common "something" cannot be a geometrical,

¹ "Nothing can have an intrinsic value." Barbon, *op. cit.*, p. 28. Or, as Butler has it:

"The value of a thing
Is just as much as it will bring."

physical, chemical, or other natural property of commodities. The material properties of these only concern us, here, in so far as they confer utility, so as to render the commodities use-values. On the other hand, the obvious characteristic of the exchange ratio between commodities is precisely this, that it is an abstraction from their use-values. From that outlook, one use-value is just as good as another, if there be enough of it. Barbon said this long ago: "One sort of wares is as good as another, if the values be equal. There is no difference or distinction in things of equal value. . . . A hundred pounds' worth of lead or iron, is of as great value as one hundred pounds' worth of silver and gold."¹ Regarded as use-values, commodities are, above all, of different quality; regarded as exchange-values, they can merely differ in quantity, for from this point of view they have no use-value at all.

When the use-values of commodities are left out of the reckoning, there remains but one property common to them all, that of being products of labour. But even the product of labour has already undergone a change in our hands. If, by our process of abstraction, we ignore its use-value, we ignore also the material constituents and forms which render it a use-value. It is no longer, to us, a table, or a house, or yarn, or any other useful thing. All the qualities whereby it affects our senses are annulled. It has ceased to be the product of the work of a joiner, a builder, a spinner; the outcome of some specific kind of productive labour. When the useful character of the labour products vanishes, the useful character of the labour embodied in them vanishes as well. The result is that the various concrete forms of that labour disappear too; they can no longer be distinguished one from another; they are one and all reduced to an identical kind of human labour, abstract human labour.

Let us now consider the residuum of the labour products. Nothing is left of them but the before-mentioned unsubstantial entity, a mere jelly of undifferentiated human labour, this meaning the expenditure of human labour power irrespective of the method of expenditure. All that now matters in the labour products is that human labour power has been expended in producing them, that human labour power is stored up in them. As crystals of this social

¹ Barbon, *op. cit.*, pp. 33 and 37

substances common to them all, they are values—commodity values.

In the ratio of exchange between commodities, their exchange-value seemed to us something that was completely independent of their use-values. Ignoring the use-value of the labour products, we arrive at their value in the sense above defined. The common element disclosed in the exchange ratio or exchange-value of the commodities is, in fact, their value. The course of our investigation will show that exchange-value is the necessary phenomenal form of value, the only form in which value can be expressed. For the nonce, however, we have to consider value in itself, and independently of this mode of expression.

A use-value or a good [a useful article] has value solely because abstract human labour has been embodied or materialised in it. How are we to measure this value? In terms of the quantity of "value-creating" substance it contains—the quantity of labour. This is itself measured by its duration; and labour time, in turn, is measured by hours, days, etc.

Now, if the value of a commodity be determined by the amount of labour expended during its production, it might seem at the first glance as if the value would be greater in proportion as the worker who made it was lazier or more unskilled, seeing that idleness or lack of skill would increase the time needed for production. But the labour which creates the substance of value is homogeneous human labour, the expenditure of a uniform labour power. The total labour power of society, as embodied in the gross value of all commodities, though comprising numberless individual units of labour power, counts as an undifferentiated mass of human labour power. Each of these individual units of labour power is the same human labour power as all the other units—in so far as it has the characteristics of social average labour power, and functions as such; in so far, that is to say, as in the production of a commodity it uses only the average labour time or the socially necessary labour time. Socially necessary labour time is the labour time requisite for producing a use-value under the extant social and average conditions of production, and with the average degree of skill and intensity of labour. After steam-power looms had got to work in England, only half (or thereabouts) of the previous amount of labour was

needed to transform a given quantity of yarn into cloth. The individual hand-loom weaver took just as long to effect this transformation as before the introduction of steam-power into the textile industry, but the product of his one hour's labour under the old conditions represented product of only half an hour's average social labour under the new, and was therefore worth only half as much as before.

What determines the magnitude of value of a use-value is, therefore, the amount of socially necessary labour it contains, or the social labour time requisite for its production.¹ Speaking generally, in this connexion, each individual commodity must be regarded as an average sample of its class.² Commodities which contain equal quantities of labour, or can be produced in equal periods of labour time, have therefore the same magnitude of value. The ratio between the respective values of two commodities is identical with the ratio between the periods of necessary labour time occupied in their production. "As values, commodities are nothing but particular masses of congealed labour time."³

The magnitude of value of a commodity would thus remain constant, if the labour time needed for its production were constant. But this latter changes with every change in the productivity of labour. The productivity of labour is determined by various circumstances, among which may be mentioned: the workers' average skill; the development of scientific theory, and the degree to which this theory is applicable in practice; the social organisation of production; the supply and the efficiency of the means of production; physical conditions. For example, a specified amount of

¹ "The value of them [the necessities of life] when they are exchanged the one for another, is regulated by the quantity of labour necessarily required, and commonly taken in producing them." *Some Thoughts on the Interest of Money in general, and particularly in the Public Funds, &c.*—The remarkable work from which the foregoing quotation is taken (p. 30) is anonymous, and bears no date on the title-page. It was published in London, during the reign of George II. Internal evidence shows that the year of publication was probably 1739 or 1740.

² "All products of one and the same kind constitute, substantially, but a single mass, whose price is determined by general considerations, and without regard to particular circumstances." *Le Travail*, op. cit., p. 893.

³ Karl Marx, op. cit., p. 6.

labour will, in a favourable season, be represented by eight bushels of wheat, and in an unfavourable season by four. The same quantity of labour produces a larger quantity of ore in a rich mine than in a poor one. Diamonds are such scarce products in the earth's crust that, on the average, a very large amount of labour time is needed for their discovery; hence a diamond represents much labour condensed into a small space. Jacob doubts whether gold has ever been paid for at its full value, and this doubt is still more applicable to diamonds. According to Eschwege, by 1823 the total output of the Brazilian diamond mines during the previous eighty years had failed to realise a price equal to that of one and a half years' average produce of the sugar and coffee plantations of the same country, although the diamonds represented far more labour, and therefore more value. If richer diamond mines were discovered, a specified amount of labour would be represented by more diamonds, and the value of diamonds would diminish. Should it become possible, with a small expenditure of labour, to make diamonds out of charcoal, they might be worth less than bricks. Speaking generally, the greater the productivity of labour—the shorter is the period of labour time needed for the production of an article, the smaller the amount of crystallised labour it contains, and the less its value. Conversely, the smaller the productivity of labour—the longer is the period of labour time needed for the production of an article, and the greater its value. Thus the magnitude of value of a commodity varies directly as the amount, and inversely as the productivity, of the labour embodied in it.

A thing can be a use-value though it has no value. That is the case when its utility to mankind is not the outcome of labour. Instances are: air, virgin soil, prairie, primeval forest, etc. A thing can be useful and the product of human labour without being a commodity. One who satisfies his wants with the product of his own labour, makes a use-value but does not make a commodity. To produce commodities he must produce, not use-values merely, but use-values for others—social use-values. [Nor does it suffice to say that he produces "for others" without farther qualification. The mediæval peasant produced *census-corn* for the seigneur and *tithe-corn* for the priest; but the fact that they were produced for others did not make commodities of course—

corn and tithe-corn. To become a commodity, a product must pass by way of exchange into the hands of the other person for whom it is a use-value.} Finally, nothing can have value unless it has utility. If it is useless, the labour embodied in it has been useless; such labour cannot be counted as labour, and therefore cannot produce value.

2. TWOFOLD CHARACTER OF THE LABOUR EMBODIED IN COMMODITIES.

We saw at the outset that a commodity is compounded of two things, use-value and exchange-value. Subsequently it became clear that labour, too, in so far as it finds expression in value, acquires characteristics differing from those of labour as the producer of use-values. I was the first to point out and discuss this twofold character of the labour embodied in commodities.¹ Since it is upon this that the understanding of political economy turns, we must look into the matter more closely.

Let us take two commodities, such as a coat and ten yards of linen. The former we will suppose to be worth twice as much as the latter, so that, if ten yards of linen = W , the coat = $2W$.

The coat is a use-value; it satisfies a special want. To produce it, a particular kind of productive activity is requisite. The nature of this activity is determined by its purpose, mode of operation, substance, means, and result. The labour whose utility is thus represented in the use-value of its product, or the labour which thus manifests itself by making its product a use-value, is termed, for short, "useful labour". From this outlook, labour is always regarded with an eye to its effect as producer of utility.

Just as the coat and the linen are qualitatively different use-values, so are the forms of labour that respectively produce them (tailoring and weaving) qualitatively different. Were not the two things qualitatively different use-values, and therefore the products of qualitatively different forms of useful labour, they could not confront one another as

¹ I add the passage in brackets to clear up a common misunderstanding. It has often and wrongfully been supposed that Marx regarded as commodities all products that were consumed by other persons than the producers.—*Notes by FREDERICK ENGELS.*

² Karl Marx, *op. cit.* pp. 52, 13, etc.

commodities. Coats are not exchanged for coats; a use-value is not exchanged for another use-value of the same kind.

In the totality of different kinds of use-values or commodities, there is embodied a totality of equally diversified forms of useful labour. The kinds of useful labour can be divided into genera, species, subspecies, and varieties—for there is a social division of labour. This division of labour is essential to the production of commodities; although it is not true, conversely, that there is no social division of labour in the absence of commodity production. In the primitive communities of India there is social division of labour, but the products of this community production do not become commodities. To take an example that lies nearer to our hand, in every factory there is a systematic division of labour, but this division of labour is not brought into being by an exchange of individual products among the workers in the factory. The only products which confront one another as commodities are those produced by reciprocally independent enterprises.

We have learned, then, that in the use-value of every commodity there is embodied definite, purposive, productive activity; or, in other words, useful labour. Use-values cannot confront one another as commodities, unless they contain qualitatively different forms of useful labour. In a society whose products, in general, take the form of commodities, i.e. in a society of commodity producers, this qualitative differentiation of useful forms of labour carried on by reciprocally independent enterprises develops into a complicated system, a social division of labour.

The coat, as a coat, fulfils its purpose equally well whether it is worn by the tailor who makes it, or by one of that tailor's customers. In either case it functions as a use-value. Nor is the relation between the coat and the labour which produces it affected by the fact that tailoring may have become a special trade, an independent branch of the social division of labour. Urged to action by the need for clothing, man made garments for thousands of years before any one became a tailor. But the existence of the coat, of the linen, of every constituent of material wealth other than those freely provided by nature, must be brought about by a special, purposive, productive activity, one which adapts particular gifts of nature to particular

human wants. As creator of use-values, as useful labour, labour is a necessary condition of human existence, and one that is independent of the forms of human society; it is, through all the ages, a necessity imposed by nature itself, for without it there can be no interchange of materials between man and nature—in a word, no life.

The use-values coat, linen, commodities in general, are compounded of two elements, matter and labour. When we abstract the total amount of the various kinds of useful labour embodied in the coat, the linen, or any other commodity, there always remains a material substratum which has been supplied by nature without the help of man. In the process of production, man can only work as nature works—by changing the forms of matter.² May more, in this work of changing the forms of matter he is continually aided by the forces of nature. We see, then, that labour is not the only source of the use-values it produces, is not the only source of material wealth. As William Petty phrases it, while labour is the father of material wealth, the earth is its mother.

Let us now pass from the commodity regarded as an object possessing utility, to consider the value of the commodity.

In our example we assumed the coat to be worth twice as much as the linen. This, however, is merely a quantitative difference, which does not here concern us. Let us bear in mind, however, that, if a coat be worth twice as much as ten yards of linen, then twenty yards of linen will have the same magnitude of value as one coat. As values, coat and

² "The phenomena of the universe, whether the products of man's hand or of the universal laws of physics, give rise and all the idea, not of actual creation, but solely of a modification of matter. Bringing together and taking apart—these are the only elements which human intelligence can discover when it analyses the idea of production, including the production of value [see below] or wealth—whether it be that earth, air, and water are transformed in the fields into grain; or that by the hand of man the sticky secretion of an insect is changed into silks and velvets, or a few scraps of metal are made into a repeater watch." Pietro Verni, *Modernismi nella economia politica*, first published in 1872, in Caracciolo's edition of the Italian economists, modern section, vol. XV, p. 22.—When, in the above-quoted passage from his polemic against the physiocrats, Verni writes "value" (valore), he means "use-value," though he does not really know himself to which kind of value he is referring.

linen are of the same substance, are the objective expressions of one and the same kind of labour. Tailoring and weaving are, however, qualitatively different kinds of labour. Nevertheless there are phases of social life in which a man will sometimes do tailoring work and sometimes weaving. In that case, the two different kinds of labour are but modifications of the labour of the same individual, instead of being peculiar and permanent functions of different individuals; just as the coat which a tailor makes one day and the trousers which he makes the next, are but variations of the same individual labour. It is, moreover, obvious that in our capitalist society, in accordance with variations in the demand for labour, a given portion of human labour will be supplied, now in the form of tailoring, and now in the form of weaving. No doubt this change in the form of labour is likely to be attended by friction, but it is inevitable none the less. The essence of productive activity, if we disregard its particular form and consequently ignore the utility of the labour, is this—that it is an expenditure of human labour power. Tailoring and weaving, though qualitatively different productive activities, are both of them productive expenditure of the human brain, muscle, nerve, hand, etc., and in this sense are both of them human labour. They are merely two different ways of expending human labour power. Of course this human labour power must be more or less developed before it can be expended in varying forms. But the value of any commodity represents human labour unqualified, represents generalised human labour. Just as in bourgeois society a commander-in-chief or a banker plays a great part, whereas a mere "man" plays a small one,¹ so here with human labour. It is the expenditure of simple labour power, such as, on the average, the ordinary man, without any special development of faculty, is equipped with in his bodily organism. Simple average labour doubtless varies in character as between one country and another, and as between one cultural epoch and another; but in any given community it is a constant. Skilled labour counts only as intensified, or rather multiplied, simple labour, so that a smaller quantity of skilled labour is equal to a larger quantity of simple labour. Experience shows that skilled labour can always be reduced in this way to the terms

¹ Cf. Hegel, *Philosophie des Rechts*, Berlin, 1840, p. 230, § 200.

of simple labour. No matter that a commodity be the product of the most highly skilled labour, its value can be equated with that of the product of simple labour, so that it represents merely a definite amount of simple labour.¹ The varying ratios in accordance with which different kinds of labour are reduced to simple labour as their standard, are determined by a social process which goes on behind the backs of the producers, and to them, therefore, seems to be established by custom. In what follows we shall, for simplicity's sake, regard every kind of labour power as simple labour power, thus saving ourselves the trouble of making the reduction.

When we consider coat and linen as values, we ignore differences in their use-values. In like manner, when we consider the labour embodied in these values, we ignore the differences in the kind of utility as between the two forms of useful labour, tailoring and weaving. Just as the use-values coat and linen are combinations of purposive productive activities with cloth and yarn respectively, whereas the values coat and linen are merely homogeneous aggregates of undifferentiated labour; so do the aggregates of labour incorporated in these values count, not in virtue of their productive relationship to the cloth or the yarn, but simply in virtue of being expenditures of human labour power. Tailoring and weaving are formative elements in the production of the use-values coat and linen, for the very reason that the two kinds of useful labour differ in quality; but they are substantial constituents of the coat-value and the linen-value only in so far as their specific qualities as tailoring and weaving are disregarded, and only in so far as both have the same quality of being human labour.

Coat and linen, however, are not merely values in a general sense; they are values of a definite magnitude. According to our primary assumption, the coat is worth twice as much as ten yards of linen. Whence does this difference in the magnitudes of their values arise? It is due to the fact that the piece of ten yards of linen embodies

¹ The reader will be good enough to note that we are not here discussing wages, or the value which the worker receives for a day's labour, but the commodity value into which his day's labour is incorporated. We have nothing to do with wages at this stage of the argument.

only half as much labour as the coat; this meaning that, for the production of the coat, labour power was expended for a time twice as long as that needed for the production of the linen.

Whereas, then, in respect of the use-value of a commodity, the labour embodied in it counts qualitatively only; in respect of the magnitude of its value, the labour counts only in a quantitative sense, after it has been reduced to human labour pure and simple. In the former case, we are concerned with the how and the way of the labour. In the latter case, we are concerned with the duration of the labour, must answer the question "How long?" Since the magnitude of the value of a commodity represents only the amount of labour which the commodity embodies, it follows that suitable proportions of various commodities will have values of equal magnitude.

If the productive power (let us say, of all the different kinds of useful labour needed to produce a coat) remains unchanged, the total magnitude of the values of a number of coats will increase as their number increases. If one coat represents the labour of x days, two coats will represent the labour of $2x$ days, and so on. Next let us suppose that the amount of labour needed for the production of a coat is doubled or halved. If it be doubled, one coat will now be worth as much as two coats were worth before; if it be halved, two coats will now be worth only as much as one coat was worth before. Yet in either case a coat does the same service as before, and the useful labour embodied in it is just as good as of old. What has changed is, the amount of labour expended in the production of a coat.

An increase in the quantity of use-value is an increase in material wealth. Two coats are more than one. Two coats serve to cover two men; one coat can cover one man only. Nevertheless, an increase in the amount of material wealth may take place while the magnitude of the value of this wealth falls. Such a contradictory movement is the outcome of the twofold character of labour. Productive power is, of course, in all cases the productive power of useful concrete labour; in actual fact it determines only the efficacy of purposive productive labour in a given space of time. Thus useful labour becomes a more abundant or a less abundant source of products, according as its

productive power rises or falls. On the other hand, no change in productive power can, by itself, affect the labour that is embodied in value. Since the productive power appertains to the concrete useful form of labour, it cannot have any bearing on labour when labour is considered in the abstract, apart from its concretely useful form. In equal spaces of time, the same labour always generates equal magnitudes of value, however much the productive power may vary. But in equal spaces of time, the same amount of labour generates varying amounts of use-value; more when productive power rises, less when it falls. The same change in productive power which increases the yield of labour, and therefore increases the amount of use-values it generates, diminishes the magnitude of the value of this increased total mass if it lessens the sum-total of the labour time necessary for its production. The converse is equally true.

On the one hand, all human labour is, physiologically speaking, the expenditure of human labour power; and thus, as homogeneous or abstract human labour, it creates the value of commodities. On the other hand, all labour is the expenditure of human labour power in a special, purposive form; and thus, as concrete useful labour, it creates use-values.¹

¹ In order to prove that labour, and nothing but labour, is the ultimate and actual measure whereby the value of all commodities can always be estimated and compared, Adam Smith writes: "Equal quantities of labour meet at all times and in all places have the same value for the labourer. In his normal state of health, strength, and activity, and with the average degree of skill that he may possess, he must always give up the same portion of his rest, his freedom, and his happiness." *Wealth of Nations*, book I, chap. v. On the one hand, Adam Smith confuses here (not everywhere) the determination of value by means of the amount of labour expended in the production of the commodity, with the determination of commodity values by means of the value of the labour, thus trying to prove that equal quantities of labour always have the same value. On the other hand, he has an inkling of the fact that labour, in so far as it is embodied in the value of commodities, counts only as the expenditure of labour power; but he conceives this expenditure as nothing more than the sacrifice of rest, freedom, and happiness, instead of regarding it likewise as the normal activity of human beings — Smith's forerunner already quoted by me in note 1 to page 8 hits the mark much better when he writes (op. cit., p. 38): "One man has employed himself a week in providing us this necessary of life, . . . and he that gives him some other in exchange, cannot make a better estimate of what is a proper equivalent, than by

3. THE FORM OF VALUE, OR EXCHANGE-VALUE.

Commodities come into the world as use-values, such as iron, linen, wheat, etc. This is their straightforward natural form. They are, however, commodities only in virtue of their twofold character, simultaneously as useful objects and as depositories of value. Consequently, they can only manifest themselves as commodities, or can only have the form of commodities, in so far as they have a twofold form: a bodily form, and a value form.

The reality of the value of commodities thus resembles Mistress Quickly, of whom Falstaff said: "A man knows not where to have her." This reality of the value of commodities contrasts with the gross material reality of these same commodities (the reality which is perceived by our bodily senses) in that not an atom of matter enters into the reality of value. We may twist and turn a commodity this way and that—as a thing of value it still remains unappreciable by our bodily senses. Let us recall, however, that commodities only possess the reality of value in so far as they are expressions of one and the same social unit, namely human labour. Since the reality of their value is thus purely social, it is obvious that this reality can manifest itself only in the social relation between one commodity and another. We set out, in fact, from the exchange-value or ratio of exchange of commodities, in order to get at the value that lies hidden in them. Now we must return to this phenomenal form of value.

Every one knows so much, at least, that commodities have a value form common to them all, the money form; and they know that the money form contrasts markedly with the manifold bodily forms of their use-values. But here we are confronted by a task which bourgeois economics has never even tried to undertake. We have to discover the origin of the money form; to trace the development of the expression of value contained in the value ratio of commodities; to follow this up from its simplest and most inconspicuous configuration to the glaringly obvious money form. Then the enigma of money will cease to be an enigma.

competing what cost him just as much labour and time; which in effect is no more than exchanging one man's labour in one thing for a time certain, for another man's labour in another thing for the same time."

The simplest value ratio is obviously the value ratio between one commodity and some one other commodity of a different kind—no matter what kind. The ratio between the respective values of two commodities thus gives us the simplest expression for the value of one of them.

A. Elementary, Isolated, or Accidental Form of Value

We write x commodity A = y commodity B; or we say that x commodity A "are worth" y commodity B. In the concrete, we write, 20 yards of linen = 1 coat; or we say that 20 yards of linen "are worth" one coat.

a. *The two Poles of the Expression of Value: Relative Value Form and Equivalent Form.*

The whole mystery of the form of value lies hidden in this elementary form, and its analysis is our fundamental difficulty.

A and B, the two different kinds of commodity (linen and coat in our concrete instance), obviously play different parts. The linen expresses its value in the coat; the coat serves as the means for the expression of this value. The former commodity plays an active role; the latter, a passive one. The value of the former commodity is presented as relative or comparative, or appears in a relative form. The latter commodity functions as an equivalent, or appears in an equivalent form.

Relative value form and equivalent form are reciprocally dependent factors, mutually determining one another, and inseparable: but at the same time they are mutually exclusive or contrasted extremes, polar opposites of the same expression of value; they are respectively assigned to the two different commodities which are brought into relation by the expression of value. I cannot express the value of linen in terms of linen. It is not an expression of value to say: 20 yards of linen = 20 yards of linen. All that this equation conveys is that 20 yards of linen are nothing else than 20 yards of linen, are a given quantity of the useful object linen. The value of the linen can only be expressed by a relation, only in terms of another commodity. The relative value form of the linen implies, therefore, that some other commodity is contraposed to

the linen in the equivalent form. On the other hand, this other commodity which figures as an equivalent cannot simultaneously present itself in the relative form of value. It does not express its own value, but merely serves as means for expressing the value of the other commodity.

It is true that the expression, 20 yards of linen = 1 coat, or 20 yards of linen are worth one coat, includes the converse expression, 1 coat = 20 yards of linen, or 1 coat is worth 20 yards of linen. But if I wish to express the value of the coat relatively, I have to transpose the terms of the equation; and as soon as I do this the linen becomes the equivalent in place of the coat. In one expression of value, one commodity cannot simultaneously appear in both forms. These forms are polar opposites, are mutually exclusive.

Whether a commodity is in the relative value form, or in the opposed equivalent form, depends solely upon what happens to be its position in the expression of value—upon whether it is the commodity whose value is expressed, or the commodity in terms of which the value of some other commodity is expressed.

b. *Relative Value Form.*

a. *Nature and Meaning of Relative Value Form.*

If we wish to discover how the elementary expression of the value of a commodity lies hidden in the value ratio between two commodities, we must begin by contemplating this ratio independently of its quantitative aspect. People usually take the opposite course, seeing in a value ratio nothing more than the proportion in which specified quantities of two different kinds of commodity can be equated. They fail to see that the magnitudes of different things cannot be quantitatively compared until they have been expressed in terms of the same unit. Only as expressions of the same unit do they become quantities which bear the same name, and are therefore commensurable.¹

¹ The few economists who, like S. Bailey, analysed value form, failed to arrive at any result: first, because they confused the form of value with value itself; and, secondly, because (greatly influenced by the mentality of the practical bourgeois) they were from the very outset incapable of attending to anything but the quantitative aspect of the question. "The command of quantity . . . constitutes value." S. Bailey, *Money and its Equivalent*, London, 1837, p. 11.

No matter whether 20 yards of linen = 1 coat, or 20 coats, or x coats—no matter whether a given quantity of linen is worth few coats or many—every such statement of a ratio implies that the linen and the coats are, as magnitudes of value, expressions of the same unit, things of the same kind. Linen = coat is the groundwork of the equation.

Still, the two commodities which are thus qualitatively equated play different roles. The value of one only, the linen, is expressed. How? By its relation to the coat as its "equivalent", as that for which it can be "exchanged". In this relation, the coat, as the form in which value is embodied, counts as a thing having value, for only as such is it the same as the linen. On the other hand, the linen's own value comes to light, or secures independent expression; for only as value is it of equal value with the coat and exchangeable for the coat.

In like manner, butyric acid and propyl formate are different substances. Yet both of them are made up of the same chemical elements, carbon and hydrogen and oxygen, combined in identical proportions, so that each substance is represented by the formula $C_4H_8O_2$. If, now, we equate butyric acid with propyl formate, we imply two things: first, that, in this relation, propyl formate counts only as a form of existence of $C_4H_8O_2$; and, secondly, that butyric acid, too, consists of $C_4H_8O_2$. When we equate propyl formate with butyric acid, the equation expresses their ultimate chemical composition, in contradistinction to their outward bodily form.

We may put the matter thus. As values, commodities are mere jellies of human labour, and for this reason our analysis reduces them to value in the abstract, but does not give them any value form differing from their bodily form. It is otherwise when we are concerned with the value relation between one commodity and another. Then the character of the value of the former commodity is disclosed in virtue of its relation to the latter.

When the coat as a thing having value is equated with the linen, the labour embodied in the coat is equated with the labour embodied in the linen. It is true that the tailoring which makes the coat, is, in the concrete world, a different kind of labour from the weaving which makes the linen. But when the coat is equated with the linen,

the tailoring is in actual fact reduced to that which is identical in the two kinds of labour, is reduced to their common quality as human labour. In this roundabout way, then, we are saying that weaving, in so far as it weaves value, cannot be differentiated from tailoring, for it is abstract human labour. Nothing but the expression of the equivalence between different kinds of commodities can disclose the specific character of value-creating labour. It does so by reducing the different kinds of labour embodied in the different commodities to that which is common to them all, to human labour in the abstract.*

It is not enough, however, that we should express the specific character of the labour wherein the value of the linen consists. Human labour power in the *find state*, or human labour, creates value, but is not itself value. It only becomes value when solidified, when concentered. To express the value of the linen as a *jelly* of human labour, it must be expressed as a "reality" which is essentially distinct from the linen itself, but is something common to the linen and other commodities. This solves our problem.

In the value ratio towards the linen, the coat counts as its qualitative equal; as a value, it is something of the same kind as the linen. Here, then, it counts as a thing in which value becomes manifest; or as a thing which, in its palpable bodily form, represents value. Yet the coat itself, the substance of the coat as commodity, is a mere use-value. A coat taken by itself does not express value any more than does a chance piece of linen taken by itself. This merely shows us that the coat means more when brought into a value relation with the linen than it means apart from such a relation—just as many a man

* The famous Benjamin Franklin, one of the first economists (after William Petty) to grasp the true nature of value, writes: "Trade in general being nothing else but the exchange of labour for labour, the value of all things is . . . most justly measured by labour." *Works of B. Franklin*, edited by Sparks, Boston, 1864, vol. II, p. 267. Franklin is not aware that, when he measures the value of all things "by labour", he is disregarding the differences between the kinds of labour that are exchanged one for another, and is thus reducing them all to undifferentiated human labour. Yet, though not aware of it, he says as much. He begins by speaking of "the one labour", goes on to speak of "the other labour", and in the end refers to "labour" without qualification as the substance of the value of all things.

wearing a smart uniform means more than the same man in rags.

In the production of the coat, human labour power has been expended in the form of tailoring. Human labour has, therefore, been stored up in it. In this aspect the coat is a "depository of value", although its quality as such a depository remains hidden even though it be worn thread-bare. In its value relation to the linen it counts only thus, only as embodied value, only as a body that has value. Tightly buttoned up though the coat be, the linen looks within, and recognises in the coat the beautiful soul of value akin to the linen's own. But the coat cannot express value in relation to the linen, unless, from the outlook of the linen, this value assumes the form of a coat. In like manner, A cannot assume the aspect of a king's majesty for B unless, in B's eyes, the idea of "majesty" becomes associated with the bodily form of A—this meaning that "majesty" will have to change features, hair, and many other bodily characteristics, when a new king ascends the throne.

In the value ratio wherein the coat forms the equivalent of the linen, the coat form therefore counts as a value form. The value of the commodity linen is consequently expressed in the body of the commodity coat, the value of one commodity in the use-value of the other. As a use-value, the linen is something which to our senses is obviously different from the coat; as a value it is the equivalent of the coat, and therefore looks like a coat. In this way it acquires a value form different from its bodily form. The essence of its value is manifest in its likeness to the coat, just as the sheep nature of the Christian is manifest in his resemblance to the Lamb of God.

We see that everything which our analysis of the value of commodities has told us, is disclosed by the linen itself as soon as it comes into relation with another commodity, the coat. It conveys its thoughts in the only language it knows—the language of commodities. In order to tell us that its own value is created by labour in the abstract form of human labour, it says that the coat, so far as equivalent to itself, is likewise value, consisting of the same labour as linen. In order to tell us that its sublimated reality as value differs from its buckram body, it says that value looks like a coat, and that consequently, so far as linen

is a value, it and the coat are as like as two peas. Let me say in passing that the language of commodities has many other more or less correct dialects over and above Hebrew. The German "*würthesin*", for instance, expresses (though less forcibly than the Romance verb "*valere*", "*valer*", "*valoir*") the fact that the equating of commodity B to commodity A is A's own way of expressing its value. "*Paris vaut bien une messe!*" [Paris is well worth a mass].

By means of the value ratio, the bodily form of commodity B thus becomes the value form of commodity A, or the body of commodity B acts as mirror to the value of commodity A.¹ Inasmuch as commodity A becomes related to commodity B as the embodiment of value, as materialised human labour, it makes the use-value B serve as material for the expression of its own value. The value of commodity A, as thus expressed in the use-value of commodity B, has taken the form of relative value.

β. Quantitative Determination of Relative Value Form.

Every commodity whose value is to be expressed, is a useful object of which there is a given quantity, such as 15 bushels of wheat, 100 lbs. of coffee, etc. This given quantity of any commodity contains a definite amount of human labour. Thus the value form has to express, not only value in general, but also a definite quantity of value, or a magnitude of value. In the value ratio of commodity A to commodity B, of the linen to the coat, the specific commodity coat is not merely equated qualitatively with linen in general; what happens is that with a definite quantity of linen (for example 20 yards of linen) a definite quantity of the embodiment of value, of the equivalent (for example, 1 coat), is equated.

The equation "20 yards of linen = 1 coat", or "20 yards of linen are worth 1 coat", implies that 1 coat contains

¹ After a fashion, it is with the human being as with the commodity. Since the human being does not come into the world bringing a mirror with him, nor yet as a Fichtean philosopher able to say "I am myself", he first recognises himself as reflected in other men. The man Peter grasps his relation to himself as a human being through becoming aware of his relation to the man Paul as a being of like kind with himself. Thereupon Paul, with flesh and bone, with all his Pauline corporeality, becomes for Peter the phenomenal form of the human kind.

exactly the same amount of the substance of value as 20 yards of linen contain, this meaning that the two quantities of commodities cost equal amounts of labour or equal periods of labour time. But the period of labour time requisite for the production of 20 yards of linen or 1 coat varies with every variation in the productivity of weaving or tailoring. We must now study more closely the effect of such variations on the relative expression of the magnitude of value.

I. Suppose that the value of the linen varies,¹ while the value of the coat remains constant. If the labour time needed for the production of the linen be doubled, perhaps owing to a decline in the fertility of the land on which flax is grown, then its value will be doubled. Our equation will no longer read 20 yards of linen = 1 coat, but 20 yards of linen = 2 coats, for 1 coat will now contain only half as much labour time as 20 yards of linen. If, on the other hand, the labour time needed for the production of the linen be halved, perhaps owing to an improvement in looms, then the value of the linen will be halved. Now, therefore, our equation will read 20 yards of linen = $\frac{1}{2}$ coat. The relative value of commodity A, that is to say its value expressed in terms of commodity B, thus rises or falls directly as the value of commodity A rises or falls, provided that the value of commodity B remains constant.

II. Suppose that the value of the linen remains constant, while that of the coat varies. If the labour time needed for the production of a coat be doubled, perhaps because there has been a poor crop of wool, then, instead of writing 20 yards of linen = 1 coat, we shall have to write 20 yards of linen = $\frac{1}{2}$ coat. If, on the other hand, the value of the coat be halved, then 20 yards of linen = 2 coats. The value of commodity A remaining constant, its relative value, its value expressed in terms of commodity B, falls or rises inversely as the value of B changes.

If we compare the various instances given under heads I and II, we see that the same change in the magnitude of relative value may be the outcome of opposite causes. Instead of writing 20 yards of linen = 1 coat, we may have to write 20 yards of linen = 2 coats, either because the value of the linen has been doubled, or because the value

¹ The term "value" is used here (as previously sometimes) to denote quantitatively determined value, i.e. magnitude of value.

of the coat has been halved; and instead of writing 20 yards of linen = 1 coat, we may have to write 20 yards of linen = $\frac{1}{2}$ coat, either because the value of the linen has been halved, or because the value of the coat has been doubled.

III. The quantities of labour needed for the production of the linen and the coat may vary simultaneously in the same direction and to the same extent. Then, after the change as before, and however great the change in values may have been, it will still be true that 20 yards of linen = 1 coat. The change in the values of linen and coat will be made manifest as soon as they are compared with some third commodity, whose value has remained constant. If the values of all commodities were to rise or fall simultaneously and to the same extent, their relative values would remain unchanged. The actual change in values would be revealed by the fact that, in a given amount of labour time, a larger or a smaller quantity of commodities would now be produced.

IV. The labour times respectively needed for the production of the linen and the coat, and therefore the values of these commodities, may vary simultaneously in the same direction, but to a different extent; or they may vary in opposite directions; etc. The effect which all possible combinations of the kind will have upon the relative value of a commodity may readily be deduced from an application of cases I, II, and III.

We see, then, that the real changes in the magnitude of values are not reflected either unambiguously or exhaustively in their relative expression—in the magnitude of relative value. The relative value of a commodity may change, though its value remains constant. Its relative value may remain constant, though its value changes. Finally, simultaneous changes in the magnitudes of value and in the relative expression of these magnitudes, do not necessarily correspond in extent.¹

¹ With their customary shrewdness, vulgar economists turn to good account this discrepancy between magnitude of value and its relative expression. For instance, J. Boudhaert writes (*Political Economy*, London, 1892, pp. 11 and 14): "Once admit that A falls, because B, with which it is exchanged, rises, while no less labour is bestowed in the meantime on A, and your general principle of value falls to the ground. . . . If he [Ricardo] allowed that when A rises in value relatively to B, B falls in value relatively to A, he

c. *Equivalent Form.*

We have seen that in so far as a commodity A (the linen) expresses its value in the use-value of another commodity B (the coat), it stamps on the latter a peculiar form of value, that of the equivalent. The commodity linen manifests its own essentiality of value by the fact that the coat is equated with it, though the coat does not assume a value form differing from its bodily form. Thus in actual fact the linen expresses its own essentiality of value by this, that the coat is directly exchangeable for it. Consequently, when we speak of the equivalent form of a commodity we mean that it is directly exchangeable for another commodity.

When a commodity of one kind, such as coats, serves as equivalent for a commodity of another kind, such as linen, so that the coats acquire the characteristic property of being directly exchangeable for linen, this does not tell us the ratio in which coats and linen are exchangeable each for the other. Since the magnitude of the value of the linen is given, that ratio depends upon the magnitude of the value of the coats. No matter whether the coat functions as equivalent and the linen as relative value, or conversely the linen as equivalent and the coat as relative value, in both cases alike the magnitude of the value of the coat is determined by the labour time needed for its production, and is thus independent of its value form. But as soon as,

cut away the ground on which he rested his grand proposition, that the value of a commodity is ever determined by the labour embodied in it; for if a change in the cost of A affects not only its own value in relation to B, for which it is exchanged, but also the value of B relatively to that of A, though no change has taken place in the quantity of labour to produce B, then not only the doctrine falls to the ground which asserts that the quantity of labour bestowed on an article regulates its value, but also that which affirms the cost of an article to regulate its value."—Mr. Broadhurst might just as well say: "Consider the numerical ratios 10/20, 20/30, 30/100, etc. The number 20 remains unchanged, and yet its proportional magnitude, its magnitude when compared with the denominator 20, 30, 100, etc., continually falls. Thus falls to the ground the great principle that the magnitude of an integral number, such as 20, is determined by the number of units it contains."

[At the beginning of the foregoing note, Marx uses the term "vulgar economists" for the first time. He defines it later, in the footnote to p. 35.—E. and C. P.]

in the expression of value, the commodity coat assumes the position of equivalent, its magnitude of value ceases to be expressed as magnitude of value. In the equation of value, the commodity coat now figures only as a definite quantity of some article.

For instance, 40 yards of linen are worth—what? They are worth 2 coats. Because the commodity coat here plays the part of equivalent, whilst the use-value coat (in contrast with the linen) figures as the embodiment of value, a definite number of coats can serve as the expression of a definite amount of linen value. Two coats can therefore express the magnitude of the value of forty yards of linen; but they can never express the magnitude of their own value, the magnitude of coat value. A superficial understanding of the fact that in an equation of values the equivalent never has anything more than the form of a simple quantity of a thing (of a use-value), has misled Bailey, as it has misled so many economists before and after him, into regarding an expression of value as a purely quantitative relation. The actual fact is that the equivalent form of a commodity does not contain any quantitative determination of value.

The first peculiarity which strikes us when we consider the equivalent form is, that use-value has become the phenomenal form of its opposite, value.

The bodily form of the commodity becomes its value form. Mark well, however, that this *quid pro quo* [something for something] exists for a commodity B (coat, or wheat, or iron, or whatever you please) only within the confines of a value ratio, only within the bounds of this particular kind of relation between the commodity B and some other commodity A (linen, or what you will). Since no commodity can function as equivalent for itself, can make of its own bodily shape an expression of its own value, every commodity must (to express its value) enter into relation with some other commodity as equivalent, converting the bodily shape of that other commodity into the form of its own value.

One of the measures that are applicable to commodities as material bodies, as use-values, will serve to illustrate this point. A sugar-load, as a material body, is heavy, has weight; but the weight of a sugar-load is not something which you can see or handle. We then take various pieces

of iron, whose weight has been already determined. The bodily form of the iron is not, in and by itself, a phenomenal form of weight, any more than the bodily form of the sugar-load is. Nevertheless, when we wish to express the sugar-load as weight, we bring it into a weight relation with the iron. In this relation, the iron counts as a body which represents nothing but weight. A definite quantity of iron serves to measure the weight of the sugar, representing, in relation to the sugar-load, embodied weight, the phenomenal form of weight. The iron plays this part only within the bounds of the relation we are now considering, a relation into which the sugar (or anything else which has to be weighed) enters with the iron. Unless both the sugar and the iron had weight, they could not enter into this relation; it would be impossible for one to express the weight of the other. When we put them into the scales, we see that they really have the same weight, and we know that a certain proportion of one will have the same weight as a certain proportion of the other. Just as the bodily substance of the iron, when used as a measure of weight, represents, in relation to the sugar-load, weight and nothing else; so in our equation of value the bodily substance of the coat represents, in relation to the linen, value and nothing more.

Here, however, the analogy ceases. When the iron expresses the weight of the sugar-load, it represents a material property, weight, which is common to both bodies; but when the coat expresses the value of the linen, it represents a non-material property, value, which is common to both—something the reality of which is exclusively social.

Inasmuch as the relative value form of a commodity (the linen, for example) gives expression to the essentiality of its value as something utterly distinct from its bodily substance and its properties (as coat-like, for instance), this mode of expression shows, of itself, that a social relation is hidden away beneath the surface. With the equivalent form, it is the other way about. The fundamental characteristic of this is, that the bodily substance of a commodity, such as the coat in all its materiality, expresses value, is gifted by nature with the form of value. True, this applies only within the confines of the value relation in which the commodity coat functions as equivalent to the

commodity linen.¹ Since, however, the properties of a thing do not arise out of its relation to other things, but only manifest themselves in such a relation, the coat would seem to be just as much gifted by nature with its equivalent form, with its property of being directly exchangeable, as with its property of being heavy or with that of keeping us warm. Hence the enigmatic character of the equivalent form, which escapes the notice of the bourgeois economist until it confronts him, fully developed, in the shape of money. He then tries to explain away the mystifying character of gold and silver by substituting for them less perplexing commodities, and by running through the list (which he repeats with ever-renewed satisfaction) of all the rag, tag, and bobtail of commodities which at one time or another have played the part of equivalent. He never dreams that even the simplest expression of value, such as "20 yards of linen = 1 coat", already presents for solution the riddle of the equivalent form.

The body of the commodity which serves as equivalent, counts always as an embodiment of abstract human labour, and is always the product of some specifically useful concrete labour. This concrete labour thus becomes the expression of abstract human labour. If the coat, for instance, counts as nothing but the embodiment of abstract human labour, the tailoring, which is actually embodied in the coat, counts merely as the form in which abstract human labour happens to be embodied. In the expression of the value of the linen, the utility of the tailoring does not consist in this, that it makes clothes (and therefore makes a man); but in this, that it makes a body which we forthwith recognise as value—as a jelly of labour which is nowise distinguishable from the labour objectified in the linen value. If it is to become such a mirror of value, the tailoring itself must reflect nothing more than its abstract property of being human labour.

Whether in the form of tailoring or in the form of weaving, human labour power is expended. Both tailoring and weaving, therefore, possess the general property of being human

¹ Such expressions of relations in general, termed by Hegel "value categories", are of a peculiar kind. For example, here is a man who is only king because other people behave as his subjects. Yet they, for their part, believe themselves to be his subjects because he is king.

labour, and it follows that in special instances (as when we are concerned with the production of value) they may be regarded from this outlook alone. There is no mystery about the matter. But in the expression of the value of a commodity, things are turned the other way round. For example, in order to show that the weaving creates the value of the linen, not in its concrete form as weaving but in virtue of its general property of being human labour, the tailoring, the concrete labour which produces the linen equivalent, is contraposed to the weaving as the palpable embodiment of abstract human labour.

Here, then, we have a second peculiarity of the equivalent form; for, in it, concrete labour becomes the phenomenal form of its opposite, abstract human labour.

Inasmuch as this concrete labour, tailoring, counts as the mere expression of undifferentiated human labour, it is homogeneous with the labour embodied in the linen. Consequently, though it is the labour of a particular individual, it is (like all the labour which produces commodities) labour of a directly social kind. That is why it creates a product directly exchangeable for other commodities. This is the third peculiarity of the equivalent form, that individual labour assumes the form of its opposite, and becomes labour in a directly social form.

The two last-mentioned peculiarities of the equivalent form will become more intelligible if we go back to the great thinker who was the first to analyse so many of the forms of thought, society, and nature.

First of all, Aristotle tells us in so many words that the money form of commodities is but a further development of the simple form of value—this simple form being the expression of the value of a commodity in terms of any other commodity you please. He says that the phrase "5 beds = 1 house" . . . "cannot be distinguished from" . . . the phrase "5 beds = so much money".

He sees, further, that the value relation represented by the phrase "5 beds = 1 house" implies a qualitative identity between house and bed; he recognises that, different though the two things are to our bodily senses, they must have a common essence, for otherwise we could not relate them one to another as commensurable magnitudes. He says: "There cannot be exchange without equality, nor equality without commensurability." But here he halts in

his analysis of the form of value. "It is really impossible that things so different should be commensurable," i.e. qualitatively identical. Such an equalisation must be foreign to the real nature of the things; it can only be "a makeshift for practical purposes".

Thus Aristotle himself tells us what is the hindrance to the progress of his analysis. He lacks the concept of value. When, in the foregoing equation, a house expresses the worth of five beds, what is the nature of the "equality", what is the essence common to house and bed? "It is really impossible", says Aristotle, that such a common essence can exist. Why impossible? The house is something of the same kind as the bed, in so far as both of them represent what is really one and the same. This one and the same thing is—human labour.

It was, however, impossible for Aristotle to discover, by the simple study of the form of value, that in the form of commodity values all labour (of whatever kind) finds expression as identical human labour, which counts as of equal worth in them all. Aristotle could not see this because Greek society was based on slave labour, and was therefore based upon the inequality of men and their labour powers. The riddle of the expression of value is solved when we know that all labour, in so far as it is generalised human labour, is of like kind and of equal worth; but this riddle can only be unriddled when the notion of human equality has acquired the fixity of a popular conviction. No such widespread popular conviction could arise until there was a society in which the commodity form had become the generalised form of the labour product, one in which the relation of man to man as owners of commodities had become the dominant type of social relation. Aristotle's outstanding genius is shown by his discovery that a relation of equality or essential likeness underlies the expression of the value of commodities. It was only the historical limitations of the society in which he lived, that prevented his discovering the real nature of this relation of equality.

d. Elementary Form of Value considered as a Whole.

The elementary form of value of a commodity is contained in its value relation to a commodity of another kind, or in the ratio wherein it is exchangeable for that

commodity. The value of commodity A is qualitatively expressed by the direct exchangeability of commodity B for commodity A. It is quantitatively expressed by the exchangeability of a definite quantity of commodity B for the given quantity of commodity A. In other words, the value of a commodity secures independent expression by being represented as "exchange-value". At the beginning of this chapter, following the usual custom, I described a commodity as use-value and exchange-value. Strictly speaking, this was incorrect. A commodity is use-value (or a useful object) and value. It manifests itself as this twofold thing as soon as its value has a phenomenal form of its own, the form of exchange-value, differing from the bodily form; and it never has this form when regarded in isolation, but only when it is brought into a value relation (an exchange relation) with some other commodity, one of a different kind. As long as we recognise this, the foregoing locution does no harm, and serves as a conveniently terse way of phrasing.

Our analysis showed that the value form or value expression of a commodity originates in the nature of commodity value; it did not show, conversely, that value and the magnitude of value originate in their expression as exchange-value. But the latter delusion prevailed among the mercantilists, and prevails among those who have revived the mercantilist doctrine, such as Ferrier¹ and Gaillet²; and it prevails among those who are the very antipodes of the mercantilists, the modern bagmen of free trade, such as Bastiat and Co. The mercantilists lay the main stress on the qualitative aspect of the expression of value, and therefore on the equivalent form of value, which attains its most finished type in money. The modern hawkers of free trade, on the other hand, since their first object in life is to sell their wares at any price, lay the main stress on the quantitative aspect of the relative form of value. For them, therefore, neither the value nor the magnitude of value of a commodity exists anywhere except in expression through the exchange relationship—in the daily list of current prices. The Scotsman MacLeod, who

¹ F. C. A. Ferrier, sub-inspector of customs, *De gouvernement considéré dans ses rapports avec le commerce*, Paris, 1803.

² Charles Gaillet, *Des systèmes de l'économie politique*, second edition, Paris, 1831.

makes it his business to furnish the hazy notions of Lombard Street with a veneer of learning, is a successful cross between the superstitious mercantilist and the enlightened free trade hawk.

Close scrutiny of the expression of value of the commodity A that is contained in its value relation to the commodity B has shown, that, within this relation, the bodily form of commodity A counts only as a form or aspect of use-value, whereas the bodily form of commodity B counts only as a form or aspect of value. Thus the contrast between use-value and value hidden away within the commodity has an outward and visible counterpart, namely the relation between two commodities, the relation in which the commodity whose value is to be expressed counts only as use-value, whereas the commodity in terms of which value is to be expressed counts only as exchange-value. The simple value form of a commodity is, therefore, the simple phenomenal form of the inherent contrast (within the commodity) between use-value and value.

In all social conditions, the labour product is a useful object; but the labour product does not become a commodity except in a definite phase of historical evolution when the labour expended in producing a useful thing secures expression as one of the circumstantial qualities of that thing, namely as its value. It follows that the elementary value form of a commodity is at the same time the elementary commodity form of the labour product, this meaning that the evolution of the commodity form coincides with the evolution of the value form.

At the first glance we see the inadequacy of the elementary form of value, the germinal form which must pass through a series of metamorphoses before it can develop into the price form.

The expression of the value of commodity A in terms of any other commodity B, serves merely to distinguish the value of A from its own use-value, and therefore does no more than put A into an exchange relation with some other commodity of a different kind; it does not exhibit the qualitative identity and the quantitative proportionality that exist between A and all other commodities. The elementary relative value form of a commodity expresses the isolated equivalent form of another commodity. Thus, in the relative expression of the value of the linen, the

coat has nothing more than equivalent form (the form of direct exchangeability) in relation to this single commodity, linen.

But the elementary form of value passes of its own accord into a more highly developed or extended form. In the elementary form, the value of commodity A is expressed in terms of only one other commodity. It does not matter what this other commodity may be, whether coat, or iron, or wheat, or what you will. Thus for any one commodity there are numerous elementary expressions of value, according as it is brought into a value relation with this or that or the other commodity.¹ The number of possible expressions of value is restricted only by the number of kinds of commodity differing from the first. The isolated expression of the value of any one commodity is, therefore, only a term in an indefinitely long series of such elementary expressions, each of which differs from all the others.

B. Total or Extended Form of Value

We write, x commodity A = u commodity B, or = v commodity C, or = w commodity D, or = x commodity E, or = etc. In the concrete, we write, 20 yards of linen = 1 coat, or = 10 lbs. of tea, or = 40 lbs. of coffee, or = 1 qr. of wheat, or = 2 oz. of gold, or = $\frac{1}{2}$ ton of iron, or = etc.

a. *Extended Relative Form of Value.*

In this form, the value of any one commodity, such as linen, is expressed in terms of numberless other elements of the world of commodities. Any commodity you please to select may serve as mirror of the linen's value.² It is thus

¹ In Homer, for instance, the value of a thing is expressed in terms of various other things.

² When we express the value of the linen in terms of coats, we speak of its "coat value"; when we express its value in terms of corn, we speak of its "corn value"; and so on. The expression indicates that it is the value of the linen which becomes manifest in the use-values coat, corn, etc. "The value of any commodity denoting its relation in exchange, we may speak of it as . . . 'corn value', 'cloth value', according to the commodity with which it is compared; and hence there are a thousand different kinds of value, as many kinds of value as there are commodities in existence, and all are equally real and equally normal." *A Critical Dissertation*

that the value comes for the first time to show itself in its true light as a jelly of undifferentiated human labour. For now the labour which creates it is expressly represented to be labour which is essentially the same as all other human labour, in whatever bodily form that labour may happen to be incorporated—whether that labour be materialised as a coat or wheat or iron or gold or what not. Consequently, by its value form the linen is now brought into a social relation, not simply with one other commodity of a different kind, but with the world of commodities in general. As a commodity, it is a citizen of that world. At the same time, inasmuch as the different expressions of its value in terms of different commodities form an interminable series, we see that the commodity value has no preferences as to the particular form of use-value in which it secures expression.

In the first form, 20 yards of linen = 1 coat, it may be a pure accident that these two commodities are exchangeable one for another in that particular quantitative ratio. In the second form, however, we catch sight of a background fundamentally distinct from the phenomenon that seemed as if it might be fortuitous, a background which conditions that phenomenon. The value of the linen always has the same magnitude, no matter whether it be expressed in terms of coats or coffee or iron, and no matter how numerous the respective owners of these commodities may be. The chance relation between two individual owners of commodities vanishes from the picture. We see plainly that exchange does not determine the magnitude of the value of a commodity; but that, conversely, the magnitude of the value of a commodity determines its exchange relations.

on the Nature, Measure, and Causes of Value: chiefly in reference to the Writings of Mr. Ricardo and his Followers, by the Author of Essays on the Formation . . . of Opinions. London, 1825, p. 30. At the time of its publication, this work, published anonymously, attracted a good deal of attention in England. The author (G. Bailey) fancied that, by thus pointing out how manifold can be the relative expressions of one and the same commodity value, he had proved the impossibility of determining value at all. Despite his limitations, he was able to put his finger upon some of the weak spots in Ricardo's theory, as was shown by the venom with which he was attacked by the members of the Ricardian school (in the "Westminster Review", for instance).

b. Particular Equivalent Form.

In the expression of the value of the linen, every commodity (coat, tea, wheat, iron, etc.) counts as equivalent, and therefore as an embodiment of value. The particular bodily form of each of these commodities is a particular equivalent form among many. In like manner the manifold, particular, concrete varieties of useful labour contained in the various embodiments of value, count, for our present purpose, as so many special modes of materialisation, so many phenomenal forms, of any and every kind of human labour.

c. Defects of the Total or Extended Form of Value.

First of all, the relative expression of the value of commodities is incomplete, for the series which represents it is interminable. Each equation of value is but one link in a chain, to which a new link, a new expression of value, can be added whenever a new commodity crops up. Secondly, it is a variegated mosaic of disconnected and diversified expressions of value. Finally, since we have to express the relative value of every commodity in this extended form, the relative value form of each commodity is an endless series of expressions of value which differs from the relative value form of every other commodity.—The defects of the extended relative form of value are mirrored in the corresponding equivalent form. Since the bodily form of each individual kind of commodity has now become a particular equivalent form among countless other particular equivalent forms, we have nothing left but fragmentary equivalent forms, which are mutually exclusive. In like manner, the particular, concrete variety of useful labour contained in each particular commodity equivalent, is but one particular phenomenal form of human labour, and therefore cannot be exhaustive. It is true that human labour has its complete or total phenomenal form in the totality of these particular phenomenal forms. But this does not give it a unitary phenomenal form.

The extended relative form of value consists only of a summation of relative expressions of value, or equations of the first kind, such as:

20 yards of linen = 1 coat;

20 yards of linen = 10 lbs. of tea; etc.

Each of these equations implies its reverse:

1 coat = 20 yards of linen;
 10 lbs. of tea = 20 yards of linen; etc.

For, in fact, if a man exchanges portions of linen for various other commodities, and thus expresses its value in a series of other commodities, the various other owners of commodities must, of course, exchange these for linen, and must therefore express the values of their respective commodities in linen. Let us, then, invert the series, so yards of linen = 1 coat, or = 10 lbs. of tea, etc., so as to express the converse relationships. Then we shall get the generalised form of value.

C. Generalised Form of Value

$$\left. \begin{array}{l} 1 \text{ coat} = \\ 10 \text{ lbs. of tea} = \\ 40 \text{ lbs. of coffee} = \\ 1 \text{ qr. of wheat} = \\ 2 \text{ oz. of gold} = \\ \frac{1}{2} \text{ ton of iron} = \\ x \text{ commodity A} = \\ \text{etc.} = \end{array} \right\} 20 \text{ yards of linen.}$$

a. The Changed Character of this Form of Value.

Commodities now express their values: first, simply, because the value is expressed in terms of one commodity only; and, secondly, in uniform fashion, because the value of them all is expressed in terms of the same commodity. The form of value is elementary, and it is common to all commodities; it is, therefore, general.

Forms A and B (the elementary or accidental form of value, and the total or extended form of value) were only competent to express the value of a commodity as something distinct from its own use-value or material embodiment.

In the elementary or accidental form, we had such equations as, 1 coat = 20 yards of linen, 10 lbs of tea = $\frac{1}{2}$ ton of iron, and so on. The value of the coat is expressed in terms of the linen equivalent, and the value of the tea is expressed in terms of the iron equivalent; but the linen

equivalent and the iron equivalent, the respective expressions of the value of the coat and the tea, are as different from one another as are linen and iron. It is obvious that, as far as practical application is concerned, this form of value exists only in early days, when the products of labour are transformed into commodities by accidental and occasional barter.

In the total or extended form, the value of a commodity is more effectively distinguished from its own use-value; for the value of the coat (for instance) is now contraposed to its bodily form in all possible shapes, as linen equivalent, iron equivalent, tea equivalent—as anything you like except coat equivalent. On the other hand, any generalised expression of value, one common to all commodities, is directly excluded; for, in the expression of the value of any one commodity, all other commodities appear only in the form of equivalents. In actual practice, the extended form of value makes its entry into the world as soon as one particular product of labour, such as cattle, comes to be exchanged for various other commodities—not in exceptional instances merely, but habitually.

The newly acquired form of value expresses the values of all sorts of commodities in terms of one commodity (linen, for instance) set apart from the rest; it expresses the values of all other commodities by equating them with linen. As linen equivalent, the value of each commodity is distinguished, not merely from its own use-value, but from all use-value; and by that very fact its value is expressed as something which it has in common with all commodities. By this form, commodities are for the first time effectively brought into relation with one another as values, or made to confront one another as exchange-values.

The two earlier forms express the value of a commodity, in the one case in terms of a single commodity of a different kind, and in the other case in terms of a series of commodities of a different kind. In both cases alike, the single commodity makes it (so to say) its private business to find an expression for its value, and it succeeds in doing this without any active cooperation on the part of other commodities. These have merely to play a passive role as equivalents. The generalised form of value, on the other hand, only comes into being as the outcome of the joint activities of all

sorts of commodities. A commodity cannot acquire a generalised expression of its value unless all commodities simultaneously express their value in the same equivalent, so that every new commodity has to follow suit. This discloses the fact that the reality of the value of the commodities, inasmuch as it is nothing other than the "social existence" of these things, can only secure expression through their generalised social interrelations; and that the form of their value must therefore be a socially recognised form.

In the shape of linen equivalents, all commodities now appear, not only as qualitatively the same, not only as values in the general sense of the term, but also as quantitatively comparable magnitudes of value. Since their value magnitudes are mirrored in one and the same material, namely in linen, these value magnitudes reciprocally mirror one another. For example, 10 lbs. of tea = 20 yards of linen, and 40 pounds of coffee = 20 yards of linen. Consequently, 10 lbs. of tea = 20 lbs. of coffee. To put the matter in another way, in 1 lb. of coffee there is only one fourth as much of the substance of value, labour, as there is in 1 lb. of tea.

The generalised form of relative value, embracing commodities at large, stamps upon the linen (the commodity that is set apart as equivalent) the character of general equivalent. Its own bodily form is the general value form of this world of commodities, and linen is therefore directly exchangeable for all other commodities. Its bodily form is the visible incarnation, the generalised social chrysalis form (temporary resting form) of all human labour. Weaving, the labour of private persons who produce linen, simultaneously makes its appearance in a generalised social form, the form of equivalence with every other kind of labour. The innumerable equations out of which the generalised form of value is made up, constitute a series in which the labour embodied in one commodity after another is successively equated with the labour embodied in the linen, so that weaving becomes the generalised phenomenal form of undifferentiated human labour. Thus the labour which is made objective in the value of commodities, is not only presented under its negative aspect as labour in which all the concrete forms and useful qualities of the actual labour have been disregarded. Its own positive

nature is expressly disclosed. It is the reduction of all kinds of actual labour to their common characteristic of being human labour, of being the expenditure of human labour power.

The generalized form of value, the form in which the products of labour are presented as mere jellies of undifferentiated human labour, discloses by its very structure that it is the social expression of the world of commodities. It thus reveals that, in this world of commodities, the generically human character of labour constitutes its specifically social character.

b. Developmental Relation between the Relative Form of Value and the Equivalent Form.

The degree of development of the equivalent form corresponds to the degree of development of the relative form of value. We must, however, be careful to note that the development of the equivalent form is only the expression and the result of the development of the relative form of value.

The elementary or isolated relative form of value of a commodity makes some other commodity into an isolated equivalent. The extended form of relative value, the form in which the value of a commodity is expressed in terms of all other commodities, makes of these others so many isolated equivalents. At length we come to the form in which one particular kind of commodity functions as a general equivalent, inasmuch as all other commodities make of this one commodity the material for the expression of their unified generalised form of value.

Now, in proportion as the form of value develops, there is an intensification of the contrast between its two poles, the relative form of value and the equivalent form.

The first form, 20 yards of linen = 1 coat, already contains this contrast, but does not yet stabilise it. According as we read the equation forwards or backwards, each of the two commodity poles (the linen and the coat) will function alternately and indifferently in the relative form of value and in the equivalent form. In this case it is still difficult to realise that there is a polar contrast.

In the second form, only one kind of commodity can fully extend or develop its relative value; and it only

acquires this extended relative form of value because, and in so far as, all other commodities function, in relation to it, as equivalents. In this case the two terms of the equation of value, 20 yards of linen = 1 coat, or = 20 lbs. of tea, or = 1 qr. of wheat, etc., can no longer be transposed without changing the character of the equation, and converting it from the total or extended form of value into the generalised form of value.

The third form, finally, gives to commodities at large a generalised social relative form of value because, and in so far as, all commodities save one are excluded from the general equivalent form. This means that one commodity, linen, has acquired the character of being directly exchangeable for all other commodities (or has put on a directly social form) because, and in so far as, other commodities have not acquired that character (or put on that form).¹

On the other hand, the commodity that functions as general equivalent is set apart from the uniform and therefore generalised value form of commodities at large. Were the linen (or any other commodity selected to function as general equivalent) likewise to participate in the generalised relative form of value, it would have to function as equivalent to itself. Then we should get the equation, 20 yards of linen = 20 yards of linen, a tautology which expresses neither value nor magnitude of value. If we wish to express the relative value of the general equivalent, we

¹ It is far from being self-evident that this character of being generally and directly exchangeable is, so to say, a polar one, and is as inseparable from its polar opposite, the character of not being directly exchangeable, as the positive pole of a magnet is from the negative. People who give free rein to fancy may therefore imagine that all commodities can simultaneously acquire this character of being directly exchangeable—just as, if they like, they may imagine that all Roman Catholics can simultaneously become Pope. The petty bourgeois, who regards commodity production as the last word in human freedom and personal independence would naturally be delighted could we but obviate the inconveniences that result from our inability to achieve the direct exchange of commodities. The socialism of Proudhon is an elaboration of this philistine utopia, which (as I have shown elsewhere) does not even possess the merit of originality, seeing that the scheme was better worked out long since by Gray, Bury, and others. For all that, there are circles in which such wisdom still flourishes under the name of "science". Never did any other school of thought flout the word "science" as do the Proudhonists, for "when ideas fail, a word will help you out at the right moment".

must reverse the third form. This general equivalent has no relative form of value which it shares with other commodities; its value expresses itself relatively in the endless series of other commodities. Thus we see that the extended relative form of value (form B) is the specific relative form of value of the commodity that functions as general equivalent.

a. Transition from the Generalized Form of Value to the Money Form.

The general equivalent form is a generalised form of value, and any commodity can therefore assume it. However, a commodity can only function as general equivalent because, and in so far as, all other commodities set it apart from themselves as equivalent. Not until this setting apart is definitively concentrated upon one particular kind of commodity, does the uniform relative value form of commodities at large acquire objective fixity and general social validity.

When this happens, the particular kind of commodity with whose bodily form the equivalent form is socially identified becomes the money commodity, or serves as money. Thenceforward, the specific social function (and therefore the social monopoly) of this commodity is, that it plays the part of general equivalent among commodities at large. In form B, various commodities functioned as particular equivalents of the linen; and in form C, various commodities expressed their relative value in one and the same commodity, linen. As a matter of historical fact, one commodity in particular, gold, has achieved the conquest of this privileged position. If, in form C, we replace the commodity linen by the commodity gold, we have the money form of value.

D. Money Form of Value

$$\left. \begin{array}{l} 20 \text{ yards of linen} = \\ \quad \quad \quad 1 \text{ coat} = \\ \quad 10 \text{ lbs. of tea} = \\ 40 \text{ lbs. of coffee} = \\ \quad \quad \quad 1 \text{ qr. of wheat} = \\ \quad \quad \quad \frac{1}{2} \text{ ton of iron} = \\ x \text{ commodity A} = \end{array} \right\} 2 \text{ oz. of gold.}$$

Important changes occur in the transition from form A to form B and from form B to form C. On the other hand, the only difference between form D and form C is that gold has replaced linen as general equivalent. The sole advance is that the form of general direct exchangeability or the form of general equivalent has at length, by social custom, been definitively identified with the particular bodily substance of the commodity gold.

Gold is only able to confront other commodities as money, because it has previously confronted them as a commodity. Like all other commodities, it could function as equivalent—whether as isolated equivalent in isolated acts of barter, or as particular equivalent side by side with other commodity equivalents. By degrees, it came to function in narrower or wider circles as general equivalent. As soon as it has won for itself this monopoly position in the expression of value for commodities at large, it has become the money commodity; and not until it has become the money commodity can we distinguish form D from form C, not until then has the generalised form of value developed into the money form.

The elementary expression of the relative value of a commodity (linen, for instance), in terms of the commodity which has already come to function as money (gold, for instance), is the price form of that commodity. Thus the price form of the linen is, 20 yards of linen = 2 oz. of gold; or, if £2 sterling be the name given to 2 oz. of gold when coined, 20 yards of linen = £2 stg.

The difficulty in understanding the nature of the money form is nothing more than the difficulty in understanding the nature of the general equivalent form, the nature of the generalised form of value, the nature of form C. But form C is itself deducible from form B, the extended form of value; which, in turn, derives from form A, the elementary form (20 yards of linen = 2 coat, or x commodity A = y commodity B). Thus the simple or elementary commodity form is the germ of the money form.

4. THE MYSTERY OF THE PETRIFIED CHARACTER OF COMMODITIES.

At the first glance, a commodity seems a commonplace sort of thing, one easily understood. Analysis shows,

however, that it is a very queer thing indeed, full of metaphysical subtleties and theological whimsies. In so far as it is a use-value, there is nothing mysterious about it—whether we regard it as something whose natural properties enable it to satisfy human wants, or as something which only acquires such properties as the outcome of human labour. It is obvious that man, by his activity, modifies the forms of natural substances so as to make them useful to himself. For instance, the form of wood is altered when we make a table of it. None the less, the table is still wood, an ordinary palpable thing. But as soon as it presents itself as a commodity, it is transformed into a thing which is transcendental as well as palpable. It stands with its feet solidly planted on the floor: but at the same time, over against all other commodities, it stands on its head; and in that wooden head it forms crotchets far stranger than table-turning ever was.

Thus the enigma of commodities does not arise out of their use-value. Nor does it depend upon the nature of the factors of value. For, in the first place, no matter how different the kinds of useful labour or productive activity may be, it is a physiological fact that they are all functions of the human organism, and that every such function (no matter what its content and its form may be) is essentially the expenditure of human brain, nerve, muscle, sense organ, etc. Secondly, as concerns that which underlies the determination of the magnitude of value, namely the duration of this expenditure, or the quantity of labour, our senses enable us to distinguish between the quantity and the quality of labour. Whatever the social conditions, men must have had an interest in the time requisite for the production of food, though the degree of that interest must have varied at various stages of social evolution.¹ In fine, whenever human beings work for one another in any way, their labour acquires a social form.

¹ Among the Teutons of old, the unit for measuring land, known as the Morgen [approximately an acre], was the amount which could be ploughed in a day. Hence it was also called Tagwerk or Tagewerk (day's work, jornada, jornada, terra jornada, terra diornalis), Mannwerk (man's work), Mannkraft (man's power), Mannmaad (man's mead or man's mowing), Mannschuet (man's hewing or man's cutting), etc. See Georg Ludwig von Meier, *Stellung der Gerichte der Mark*, Hof-, u.s.w. Verfassung, Munich, 1839, pp. 223 et seq.

Why, then, does the labour product become enigmatic as soon as it assumes the commodity form? The cause must obviously lie in the form itself. The essential likeness of the kinds of human labour is concreted in the form of the identical reality of value in the products of labour; the measurement of the expenditure of human labour power in terms of its duration, takes on the form of the magnitude of value of the labour product; and, finally, the mutual relations between the producers, in which the social character of their labour affirms itself, assume the form of a social relation between the labour products.

Thus the mystery of the commodity form is simply this, that it mirrors for men the social character of their own labour, mirrors it as an objective character attaching to the labour products themselves, mirrors it as a social natural property of these things. Consequently the social relation of the producers to the sum total of their own labour, presents itself to them as a social relation, not between themselves, but between the products of their labour. Thanks to this transference of qualities, the labour products become commodities, transcendental or social things which are at the same time perceptible by our senses. In like manner, the impression which the light reflected from an object makes upon the retina is perceived, not as a subjective stimulation of that organ, but in the form of a concrete object existing outside the eye. But in vision, light actually passes from one thing, the external object, to another thing, the eye. We are dealing with a physical relation between physical actualities. On the other hand, the commodity form, and the value relation between the labour products which finds expression in the commodity form, have nothing whatever to do with the physical properties of the commodities or with the material relations that arise out of these physical properties. We are concerned only with a definite social relation between human beings, which, in their eyes, has been assumed the semblance of a relation between things. To find an analogy, we must enter the nebulous world of religion. In that world, the products of the human mind become independent shapes, endowed with lives of their own, and able to enter into relations with men and women. The products of the human hand do the same thing in the world of commodities. I speak of this as the *fetichistic* character which attaches to the

products of labour, so soon as they are produced in the form of commodities. It is inseparable from commodity production.

The foregoing analysis has shown that this fetishistic character of the world of commodities is the outcome of the peculiar social quality of the labour which produces commodities.

Useful objects only become commodities because they are the products of the labour of individuals or groups of individuals working independently of one another. The sum total of the labour of all these private individuals and private groups makes up the aggregate of social labour. Inasmuch as the producers do not come into social contact until they exchange their labour products, the specifically social character of their individual labour does not manifest itself until exchange takes place. In other words, the labour of individuals becomes an effective part of the aggregate of social labour solely in virtue of the relations which the process of exchange establishes between the labour products and consequently between the producers. That is why the social relations connecting the labour of one private individual (or group) with the labour of another, seem to the producers, not direct social relations between individuals at work, but what they really are; material relations between persons and social relations between things.

Not until they enter the realm of exchange do the labour products acquire, over and above and distinct from their use-objectivity (which differs from one kind of product to another), a social value-objectivity (which is of like nature in them all). This cleavage of the labour product into useful thing, on the one hand, and thing of value, on the other, does not become practically effective until the process of exchange has become so widespread and so important that useful things are produced expressly for exchange—so that the values of things have to be taken into account in the very act of production. Thenceforward the labour of private producers does really acquire a twofold social character. On the one hand such labour must, as definitely useful labour, satisfy a definite social demand, thus taking its place as a constituent of the general aggregate of labour, as part of the spontaneously developed system of the social division of labour. On the other hand such labour can only satisfy the manifold wants of the producers who perform it,

in so far as each particular kind of individual or private useful labour is exchangeable for every other particular kind, because each ranks equally with the others. Such an equalisation of utterly different kinds of labour can only be achieved by ignoring their actual unlikeness, by reducing them to terms of that which they all share as expenditures of human labour power—abstract human labour.

In the minds of the individual producers, this twofold social character of their individual labour is mirrored only as a reflexion of the forms which, in daily life, are manifested by the exchange of products. Thus the socially useful character of the producers' individual or private labour, is mirrored in the form that the labour must be useful, and useful to others; while the socially useful character that one kind of private or individual labour ranks equally with any other kind, is mirrored in the form that the products of labour, though of different kinds as material bodies, are all alike as things of value.

When, therefore, human beings bring their labour products into relation with one another as values, it is not because they recognise that the things are no more than the material wrappings for this or that amount of homogeneous human labour. On the contrary, exchanging labour products of different kinds one for another, they equate the values of the exchanged products; and in doing so they equate the different kinds of labour expended in production, treating them as homogeneous human labour. They do not know that they are doing this, but they do it.¹ Value does not wear an explanatory label. Far from it, value changes all labour products into social hieroglyphs. Subsequently, people try to decipher these hieroglyphs, to solve the riddle of their own social product—for the specification of a useful object as a value is just as much a social product as language is. The recent scientific discovery that labour products, as values, are but the material expressions of the human labour expended in their production, marks an epoch in the evolutionary history of mankind, but does not suffice to dispel the semblance of materiality

¹ When, therefore, Galiani wrote, "wealth [value] is a relation between two persons", he should have added, "but the relation is hidden away within material wrappings". Galiani, *Della scovata*, p. 220, in vol. III of Cantù's *Scrittori classici italiani di economia politica*, 2nd-4th section, Milan, 1803.

which has been assumed by the social character of labour. Physical and chemical science have analysed air into its elements, but the familiar bodily impressions produced on our senses by the atmosphere persist unchanged. Just so, after the discovery of the true nature of value no less than before, those entangled in the meshwork of commodity production regard as universally valid a truth which is in fact true only for one particular form of production, namely commodity production. They continue to believe without qualification that the specifically social character of mutually independent acts of individual or private labour consists in their general likeness as human labour, and assumes in the labour product the characteristic form of value.

In actual practice, the first concern of one who exchanges the products of labour is to know what quantity of other products he will get in return for his own, to know the ratio of exchange. When such ratios have been sufficiently matured by custom to acquire a fair amount of stability, they seem to arise out of the very nature of the labour products, so that, for instance, 1 ton of iron and 2 oz. of gold are regarded as being of equal value, just as a pound avoirdupois of gold and a pound avoirdupois of iron have the same weight notwithstanding the differences between chemical and physical properties of the two metals. The fact is that the value character of the labour products only becomes stabilised by their acting and reacting on one another as magnitudes of value. These magnitudes are perpetually changing, independently of the will, foreknowledge, and activity of those who make the exchanges, whose own social movement seems to them a movement of things—of things which control them, instead of being controlled by them. Not until commodity production is fully developed, does scientific insight grow out of experience. Then it becomes apparent that the different kinds of individual or private labour (carried on independently of one another, and yet universally dependent on one another as spontaneously developed branches of the social division of labour) are continually being reduced to their socially proportional measure. How is the reduction achieved? In this way, that, in the chance and ever-varying exchange relations between products the labour time socially necessary for their production exerts its coercive influence like

an ever-riding law of nature. The law of gravity exerts an over-riding influence in like fashion when a house tumbles about our ears.* Thus the determination of the magnitude of value by labour time is a secret hidden away beneath the manifest fluctuations in the relative values of commodities. The discovery of the way in which the magnitude of value of labour products is really determined, removes from this determination the semblance of being purely fortuitous, but does not affect the material form of the process.

Man's thought about the forms of social life, his scientific analysis of these forms, runs counter to the actual course of social evolution. He begins by an examination of the finished product, the extant result of the evolutionary process. The characters which stamp labour products as commodities, the characters which they must possess before they can circulate as commodities, have already acquired the fixity of the natural forms of social life, when economists begin to study, not indeed their history (for they are regarded as immutable), but their meaning. Thus it was only the analysis of the prices of commodities which led to the determination of the magnitude of values, it was only the common expression of all commodities in money which led to their being recognised as "values". But this finished form of the world of commodities, this money form, is the very thing which veils instead of disclosing the social character of private or individual labour, and therewith hides the social relations between the individual producers. When I say that coats or boots or what not are related to linen as the general embodiment of abstract human labour, the statement seems manifestly absurd. Yet when the producers of coats, boots, etc., bring these commodities into relation with linen as the general equivalent (or with gold or silver as the general equivalent, for the nature of the case is just the same), it is precisely in this absurd form that the relation between their own private labour and the collective labour of society discloses itself to them.

* "What are we to think of a law which can only assert itself by periodical revolutions? It is nothing but a law of nature resting on the unconsciousness of the persons concerned." Friedrich Engels, *Ursprung zu einer Kritik der Nationalökonomie*, "Deutsch-Französische Jahrbücher", edited by Arnold Ruge and Karl Marx, Paris, 1844.

These forms are the very things that comprise the categories of bourgeois economics. They are the socially valid, and therefore objective, thought-forms, which serve to express the relations of production peculiar to one specific method of social production, namely commodity production. Consequently, all the mystery of the world of commodities, all the sorcery, all the fetishistic charm, which enwraps as with a fog the labour products of a system of commodity production, is instantly dispelled when we turn to consider other methods of production.

Political economists are fond of Robinson Crusoe, so we, too, will take a look at this lonely islander. His wants are few and simple, but he has some wants at least, and must therefore undertake various kinds of useful labour. He must fashion tools, make furniture, tame lambs, fish, hunt, etc. I am not here concerned with his praying and the like, for Robinson Crusoe delights in these kinds of activity, and looks upon them as recreation. Despite the variety of his productive functions, he knows that they are but various forms of the activity of one and the same Robinson Crusoe, and are therefore nothing but different manifestations of human labour. Under stress of need, he has to allot his time suitably to this, that, and the other function. In the sum of his activities, the assignment of more space to one and less to another is determined by the greater or the less extent of the difficulties that have to be overcome in attaining the useful end he has in view. In this matter, experience is his teacher, and our Robinson (having saved timepiece, ledger, pen, and ink from the wreck) soon begins, as becomes an Englishman, book-keeping in due form with himself as subject of the entries. He writes an inventory of the useful objects he owns; specifies the routine work necessary for their production; and records the labour time which, on the average, definite quantities of the respective products cost him. The relations between Robinson and the things which comprise the wealth he has created are so simple that even Herr M. Wirth could understand them without undue mental effort. Nevertheless, all the essential determinants of value are therein contained.

Let us now transport ourselves from Crusoe's sunlit isle to the darkness of medieval Europe. In the island, we have one independent person, the only inhabitant. In

Europe during the Middle Ages, all are dependent: serfs and borers, vassals and suzerains, laymen and priests. Dependence characterises the social relations of material production, no less than the spheres of life that are established upon these relations. But for the very reason that relations of personal dependence form the groundwork of society, it is not necessary that labour and the products of labour should assume fantastic shapes differing from their real ones. They enter into the social mechanism as services in kind and payments in kind. The natural form of labour, its particular form, is here the immediate social form of labour—in contradistinction to what happens in a society organised upon the basis of commodity production, where abstract labour, its generalised form, is the immediate social form of labour. Forced labour (*corvée*) can be measured by time, just as easily as commodity-producing labour; but every serf knows that what he is expending in the service of his lord is a definite quantity of his own labour power. The tithe which must be handed over to the priest is a more tangible reality than his reverence's blessing. Whatever view we take of the masks in which the different personalities strut upon the feudal stage, at any rate the social relations between individuals at work appear in their natural guise as personal relations, and are not dressed up as social relations between things, between the products of labour.

If we wish to study labour in common, or directly associated labour, we need not go back to the spontaneously developed form which confronts us on the threshold of the history of all civilised races.² An example nearer to our hand is offered by the patriarchal industry of a peasant family working on the land, and producing for its own

² "Of late a preposterous notion has found general credence, to the effect that primitive communism as a spontaneous development is specifically a Slav, and indeed exclusively a Russian, phenomenon. Really, it is a primal form, which can be shown to have existed among the Romans, the Teutons, and the Celts; while even to-day we find numerous examples (disguised though they be) in India. Careful study of Asiatic, and especially Indian, forms of communism would disclose the way in which, out of the various kinds of spontaneously developed communism, divergent forms have evolved as results of the break-up of communism. For instance, the various original types of Roman and Teutonic private property are deducible from different forms of Indian communism." Karl Marx, *Der Kreis, etc.*, p. 10.

requirements grain, cattle, yarn, linen, clothing, and the like. For the family, these various articles are diverse products of the family labour, but they are not interchangeable as commodities. The different kinds of labour which generate these products (tillage, cattle breeding, spinning, weaving, tailoring, etc.) are in their natural form social functions, inasmuch as they are functions of the family, which has its own spontaneously developed system of the division of labour—just as commodity production has such a system. The division of labour among the various members of the family, and the apportionment of their respective labour times, are determined by differences of sex and age and by seasonal changes in natural working conditions. The expenditure of each individual's labour power, as measured by the duration of the labour, assumes from the outset the aspect of a social determination of labour, since from the outset the individual exertions of labour power function merely as instruments of the joint labour power of the family.

Finally, for a change, let us consider an association of free individuals who work with jointly owned means of production, and wittingly expend their several labour powers as a combined social labour power. In this case, all the characteristics of Robinson Crusoe's labour are reproduced, except that the labour is social, instead of being individual. Robinson Crusoe's products were exclusively individual, and were therefore useful objects for himself alone. The total product of our imaginary association is a social product. Part of this product is used as a means for further production, and therefore remains social. Another part is consumed as subsistence by the various members of the association, and has therefore to be distributed among them. The way in which this distribution is effected will vary in accordance with variations in the nature of the social organism which carries on the work of production, and in accordance with the corresponding level of historical evolution attained by the producers. Let us assume (merely for the sake of a comparison with commodity production) that each producer's share of the necessities of life is determined by the amount of time he has worked. In that case, the labour time will play a double role. On the one hand, its allotment in accordance with a definite social plan enables the various kinds of labour to be duly pro-

portioned to the various social needs. On the other hand, the labour time serves as standard of measurement, first as regards the share of each individual producer in the joint labour, and secondly (because of the foregoing) as regards the amount of the social product which each individual is entitled to consume. The social relations between human beings, on one side, and their labour and the products thereof, on the other, remain perfectly simple and perfectly clear, alike in production and in distribution.

Suppose a society made up of the producers of commodities, where the general relations of social production are such that (since products are commodities, i.e. values) the individual labours of the various producers are related one to another in the concrete commodity form as embodiments of undifferentiated human labour. For a society of this type, Christianity, with its cult of the abstract human being, is the most suitable religion—above all, Christianity in its bourgeois phases of development, such as Protestantism, Deism, and the like. But in the ancient Asiatic method of production, in that of classical Greece and Rome, and so on, the transformation of the labour product into a commodity, and therefore the transformation of men into the producers of commodities, played a subordinate part—which, however became a more important one in proportion as this type of society was passing into its decline. Like the gods of Epicurus, or like the Jews in the interstices of Polish society, genuinely commercial peoples existed only in the intermundane spaces of the antique world. The social productive organisms of ancient days were far simpler, enormously more easy to understand, than is bourgeois society; but they were based, either upon the immaturity of the individual human being (who had not yet severed the umbilical cord which, under primitive conditions, unites all the members of the human species one with another), or upon direct relations of dominion and subjugation. They were the outcome of a low grade of the evolution of the productive powers of labour; a grade in which the relations of human beings to one another within the process by which they produced the material necessities of life, and therefore their relations to nature as well, were correspondingly immature. This restrictedness in the world of concrete fact was reflected in the ideal world, in the world of the old natural and folk religions. Such religious

reflexions of the real world will not disappear until the relations between human beings in their practical everyday life have assumed the aspect of perfectly intelligible and reasonable relations as between man and man, and as between man and nature. The life process of society, this meaning the material process of production, will not lose its veil of mystery until it becomes a process carried on by a free association of producers, under their conscious and purposive control. For this, however, an indispensable requisite is that there should exist a specific material groundwork (or a series of material conditions of existence) which can only come into being as the spontaneous outcome of a long and painful process of evolution.

True that political economy has now achieved an analysis, however incomplete,¹ of value and the magnitude of value,

¹ The inadequacy of Ricardo's analysis of the magnitude of value (the best analysis to date) will become apparent in the third and fourth books of the present work. As regards value in general, classical political economy has never drawn an explicit and fully conscious distinction between labour as it finds expression in value, and the same labour as it finds expression in the use-value of what it produces. Of course the classical economists do, in actual fact, make this distinction, for they contemplate the former kind of labour quantitatively, and the latter kind qualitatively. But it does not occur to them that a purely quantitative distinction between one kind of labour and another, presupposes the qualitative unity or likeness of the two labours, and therefore their reduction to abstract human labour. For instance, Ricardo tells us that he agrees with Destutt de Tracy when the French philosopher writes [Ricardo's translation]: "As it is certain that our physical and moral faculties are alone our original riches, the employment of those faculties, labour of some kind, is our only original treasure, and it is always from this employment that all those things are created which we call riches. . . . It is certain, too, that all those things only represent the labour which has created them, and if they have a value, or even two distinct values, they can only derive them from that of the labour from which they emanate." Ricardo, *The Principles of Political Economy*, third edition, London, 1821, p. 114.—I shall content myself with pointing out that Ricardo feints his own deeper meaning upon Destutt de Tracy's words. The Frenchman does, in fact, say, on the one hand, that all things which create wealth "represent the labour which has created them"; but he also says, on the other hand, that they derive their "two distinct values" (use-value and exchange-value) from "[the value] of the labour from which they emanate". He thus lapses into the commonplace error of the vulgar economists, who assume the value of one commodity (labour, in this case), that thereby they may subsequently determine the value of the rest. Ricardo reads him as having said that labour (not the value of the labour) is embodied

and has discovered the content hidden within these forms. But the economists have never even mooted the question why the content should assume these forms; why labour should be represented by the value of the product of labour, and the quantity of labour (as measured by its duration) by the magnitude of the value of that product.¹ It is writ

both in use-value and in exchange-value. But for his own part he pays so little heed to the twofold character of labour which secures a twofold expression, that his chapter "Value and Riches, their Distinctive Properties" is largely devoted to a laborious continuation of the trivialities of J. B. Say. At the finish, therefore, he is very much surprised to find that Destutt de Tracy, while agreeing with him as to labour being the source of value, should at the same time agree with Say as to the concept of value.

¹ One of the chief failings of the classical political economy is that it never succeeded in discovering, thanks to the analysis of commodities and in especial of the value of commodities, the form of value which makes it exchange-value. Even the best exponents of the school, such as Adam Smith and Ricardo, treat the form of value as a matter of no importance, or as something that has no connexion with the essential nature of commodities. This is not only because their attention is exclusively concentrated on the analysis of the magnitude of value. There is a deeper reason. The value form of the labour product is the most abstract, but also the most highly generalized, form taken by that product in the bourgeois system of production, which derives therefrom its peculiar stamp as a special kind of social production, and thus receives its specific historical characterisation. If, therefore, we erroneously regard the value form of the labour product as the one and only form of social production, fixed for all time by nature's immutable laws, we are perforce ignoring the peculiar dialectical characterisation of the form of value, and consequently those of the commodity form, and of its further developments, the money form, the capital form, etc. That is why certain economists who are fully agreed that labour time is the measure of the magnitude of value, have the most confused and contradictory notions concerning money, i.e. the finished form of the general equivalent. This is signally shown when they come to discuss banking, a topic in which the commonplace definitions of money no longer suffice to guide the investigator's footsteps. Hence there has come into being a renovated mercantile system, whose exponents (Guthrie and others) regard value as nothing more than a social form, or rather as the unsubstantial ghost of such a form.—Let me explain here once for all that when I speak of the "classical political economy", I mean all the political economy since W. Petty which has been devoted to the study of the real interrelations of bourgeois production, in contradistinction to "vulgar economy". The "vulgar economists" are content to elucidate the semblance of the interrelations of bourgeois production; like ruminants, they spend their time in chewing the cud of materials provided in days long past by scientific political economy, seeking thence to extract for bourgeois daily food plausible explana-

large on the face of these formulas that they belong to a type of social organisation in which the process of production is the master of mankind, and in which mankind has not yet mastered the process of production. To the bourgeois mind, however, they seem as self-evident as, and no less a natural necessity than, productive labour itself. That is why bourgeois economists treat pre-bourgeois forms of the social productive organism much as the Fathers of the Church have always treated pre-Christian religions.¹

tions of the most obvious phenomena; and, for the rest, they are satisfied with systematising in pedantic fashion, and proclaiming as eternal verities, the most trivial and self-complacent notions which the agents of bourgeois production entertain with regard to their own best of all possible worlds.

"Economists are strange creatures. For them there are but two kinds of institution: works of art, and works of nature. Feudal institutions are artificial, bourgeois institutions are natural. In this matter, economists are like theologians, for whom there are only two kinds of religion. Every religion other than their own is the invention of man, whereas their own particular brand of religion is an emanation from God. . . . Thus there has been history, but now history is finished." Karl Marx, *Manus de la philosophie, réponse à la philosophie de la sainte par M. Proudhon*, 1847, p. 113.—A comical fellow is Monsieur Bastiat, with his fancy that the ancient Greeks and Romans lived by plunder alone. If people are to live by plunder for many centuries, there must always remain something to steal, or else the booty must have the power of perpetual self-reproduction. It would seem, therefore, that even the ancient Greeks and Romans must have had a process of production, an economy that is to say, which must have constituted the material foundation of their world, just as the bourgeois economy constitutes the material foundation of the modern world. Or does Bastiat mean to imply that a method of production based on slave labour rests on a system of plunder? In that case, he is treading on dangerous ground. If one of the ghosts of thought, like Aristotle, could sit in his estimate of slavery, why should one of the dwarfs among economists, like Bastiat, be right in his estimate of wage labour?—I take this opportunity of answering briefly a criticism that appeared in a German-American newspaper when my *Zur Kritik der politischen Ökonomie* was published in 1869. The critic agreed that as regards the contemporary world, where material interests are supreme, what I said was true enough. In the modern world it was true that the special method of production which prevailed, and the appropriate relations of production—in a word, the economic structure of society—formed the real basis on which the juridical and political superstructure were erected, and to which specific social forms of consciousness corresponded. It was true of the modern world that there the method by which the material necessities of life were produced, determined the general characteristics of social, political, and intellectual life. But this did not apply to the Middle Ages,

The extent to which certain economists have been led astray by the fetishistic character that attaches to the world of commodities, the manner in which they have been deluded by the semblance of objective material reality that is assumed by the social attributes of labour, is shown (to give one instance among many) by the wearisome and absurd dispute concerning the part played by nature in the creation of exchange-value. Since exchange-value is nothing more than a specific social way of expressing the labour that has been applied to a thing, it cannot contain any more natural (material) substance than does, for instance, the rate of exchange.

The commodity form is the most general and the least developed form of bourgeois production. For this reason, it makes its appearance early, though in a less dominant and typical manner than to-day. For this reason, likewise, the fetishistic character of commodities is comparatively easy to discern. But when we come to more developed forms, even this semblance of simplicity vanishes. Whence did the illusions of the monetary system arise? The mercantilists (the champions of the monetary system) regarded gold and silver, not simply as substances which, when functioning as money, represented a social relation of production, but as substances which were endowed by nature with peculiar social properties. Later economists, who look back on the mercantilists with contempt, are manifestly subject to the very same fetishistic illusion as soon as they come to contemplate capital. It is not so very long since the dispelling of the physiocratic illusion that when Catholicism held sway; and it did not apply to ancient Greece and ancient Rome, where political considerations were dominant. Now, first of all, it is strange that any one should assume another to be ignorant of these familiar notions about the Middle Ages and classical antiquity. This much, at any rate, is certain, that the Middle Ages could not live upon Catholicism, nor yet classical antiquity upon politics. On the contrary, the way in which, during classical antiquity and the Middle Ages (respectively), people gained a livelihood explained why, in the former case politics, and in the latter case Catholicism, played the leading role. Moreover (to concentrate attention on a specific instance), a very little knowledge of the history of the Roman republic suffices to acquaint us with the fact that the secret core of its history is formed by the history of its system of landed proprietorship. On the other hand, it is centuries since Don Quixote had to pay for the mistake of believing that knight-errantry was equally compatible with all the economic forms of society.

land-rents are a growth of the soil, instead of being a product of social activity!

Not to anticipate, I will content myself here with giving one more example relating to the commodity form itself. If commodities could speak, they would say: "Our use-value may interest human beings; but it is not an attribute of ours, as things. What is our attribute, as things, is our value. Our own interrelations as commodities proves it. We are related to one another only as exchange-values." Now let us hear how the economist interprets the mind of the commodity. He says: "Value [exchange-value] is a property of things; riches [use-value], of man. Value, in this sense, necessarily implies exchanges; riches do not."¹ Again: "Riches are the attribute of man, value is the attribute of commodities. A man or a community is rich, a pearl or a diamond is valuable."² A pearl or a diamond is valuable as a pearl or a diamond! Hitherto, no chemist has been able to discover exchange-value in a pearl or a diamond. But the economists who discover this chemical substance (persons who make a special claim to critical acumen) find that the use-value of the articles in question attaches to them independently of their material properties; and that, on the other hand, their value does attach to them as things. What substantiates this view is the remarkable fact that the use-value of things is realised without exchange, by means of a direct relation between things and men, whereas their value is realised only in exchange, only in a social process. Surely, in this connexion, every one will recall the excellent Dogberry's instruction to neighbour Seacoal: "To be a well-favoured man is the gift of fortune, but to write and read comes by nature."³

¹ *Observations on certain Verbal Disputes in Political Economy, particularly relating to Value and to Supply and Demand*, London, 1821, p. 16.

² S. Bailey, *op. cit.*, p. 163.

³ The author of the *Observations* and S. Bailey agree in accusing Ricardo of having transformed exchange-value from something purely relative into an absolute. Really, Ricardo went the other way about. He reduced the seeming relativity which things (diamonds and pearls, for instance) have as exchange-values, to the true relation hidden behind the semblance, to their relativity as mere expressions of human labour. If the Ricardians' answer to Bailey is valid without being effective, this is because they have been unable to find in Ricardo's writings anything which explains the intimate connexion between value on the one hand and the form of value or exchange-value on the other.

CHAPTER TWO

EXCHANGE

COMMODITIES cannot make their own way into the market, cannot spontaneously exchange themselves one for another. We must therefore consider the activities of their guardians, those who own them. Commodities are things, and are therefore passive in man's hands. If they are refractory, their owner can use force, can, in other words, take them whithersoever he will.¹ If thousands are to enter into relation one with another as commodities, the guardians of the commodities must enter into relation one with another as persons whose wills reside in these objects, and must behave in such a way that neither appropriates the commodity of the other, nor parts with his own, except by means of an act performed with mutual consent. They must, therefore, reciprocally recognise one another as private owners. This legal relation, which secures outward expression in a contract, is (whether legally formulated or not) a voluntary relation, in which the economic relation is reflected. The content of the legal or voluntary relation is determined by the economic relation.² In the case we are

¹ In the twelfth century, famous for its piracy, some very remarkable things were included among commodities. A French poet of the period enumerates among the goods on sale in the market of Landit, side by side with clothing, shoes, leather, agricultural implements, etc., "women of easy virtue".

² Proudhon begins by taking his ideal of justice, "eternal justice", from the legal relations that correspond to the production of commodities. Thereby, be it noted, he establishes (in a way infinitely pleasing to all petty bourgeois) that the form of commodity production is as eternal as justice. Then he turns round, and tries to remodel the actual production of commodities, and the actual legal system conformable thereto, in accordance with this ideal. What should we think of a chemist who, instead of studying the actual laws of the molecular changes in the composition and decomposition of matter, and instead of trying to solve particular problems on that basis, should propose to remodel chemical composition in accordance with the "eternal notions" of "naturalness" and "affinity"? Do we really know anything more about the "warrior", when we say that his actions conflict with "eternal justice", with "eternal equity", with "eternal mutuality", and

considering, the persons exist for one another only as the representatives of commodities, and therefore as the owners of commodities. During our investigation we shall find, in general, that the characters appearing upon the economic stage are merely personifications of the economic relations that exist between them.

What mainly distinguishes a commodity from its owner is that the commodity looks upon every other commodity as nothing more than the fundamental form of its own value. A born leveller and cynic, it is therefore ever ready to change, not only souls, but bodies as well, with every other commodity, though this other be more ill-favoured even than Maribornes. Since the commodity thus lacks a sense for the concrete, the owner of the commodity makes up for the lack by the use of his own five and more senses. His commodity has not for him any immediate use-value. If it had, he could not carry it to market. Its use-value is for others. For himself its only direct use-value is that it has exchange-value, and is consequently a means of exchange.¹ He therefore wishes to exchange his commodity for other commodities which will have a use-value for him. It is an essential part of the nature of all commodities, that they are not use-values for their owner, and that they are use-values for those who do not own them. Consequently, they must all change hands. But it is in this change of hands that their exchange consists. Their exchange brings them into relation one with another as values, and realises them as values. The commodities, therefore, must realise themselves as values before they can realise themselves as use-values.

On the other hand, they must show themselves to be use-values before they can realise themselves as values. The human labour which has been expended upon them, only

with other "eternal verities"—than the Fathers of the Church knew when they said that the actions of the worker conflicted with the "eternal grace", with the "eternal faith", with the "everlasting will of God"!

¹ "For twofold is the use of every object. . . . The one is peculiar to the object as such, the other is not, as a sandal which may be worn, and is also exchangeable. Both are uses of the sandal, for even he who exchanges the sandal for the money or food he is in want of, makes use of the sandal as a sandal. But not in its natural way. For it has not been made for the sake of being exchanged." Aristotle, *De re publica*, I, 4, esp. 9.

counts in so far as it has been expended in a form useful to others. But whether this labour is useful to others, whether its product can therefore satisfy others' wants, can only be proved by their exchange.

No owner of a commodity is willing to part with it in exchange except for other commodities whose use-value satisfies his wants. So far, therefore, the exchange is for him a purely private transaction. On the other hand, he wishes to realise his commodity as value, that is to say, to convert it into any other suitable commodity of equal value, no matter whether his own commodity has or has not any use-value for the owner of the other. So far, then, the exchange is for him a general social process. But the same process cannot simultaneously be, for all the owners of commodities, both exclusively private and exclusively social and general.

When we look into the matter more closely, we see that for every owner of a commodity, every commodity owned by another person counts as a particular equivalent for his own commodity, and that, therefore, his own commodity counts as a general equivalent of all other commodities. Since, however, all owners of commodities are in exactly the same position in this respect, no commodity is a general equivalent, the result being that commodities have no general form under which they can be equated as values and have the magnitude of their values compared. Consequently, they do not confront one another as commodities, but only as products or use-values.

In this quandary, our owners of commodities think after the manner of Faust: "In the beginning was the deed"—action comes first. They have therefore acted before they have thought. Instinctively they have conformed to the laws imposed by the nature of commodities. They cannot bring their commodities into relation one with another as values, and therefore as commodities, except by comparing them with some one other commodity as general equivalent. We learned this from our analysis of the commodity. But the only way in which a particular commodity can become a general equivalent is by a social act. The social act performed by all other commodities therefore sets apart a particular commodity in which they all express their values. Thereby the bodily form of this commodity becomes the form of the socially recognised general equivalent. To be the

general equivalent is, thanks to this social process, the specific function of the commodity thus set apart from the rest. In this way it becomes—money. "These have one mind, and shall give their power and authority unto the Beast. . . . And no man might buy or sell, save he that had the mark, or the name of the Beast, or the number of his name."¹

Money crystallises as a necessary product of the process of exchange, in which various kinds of labour products are, in actual practice, equated one with another, and therefore, in actual practice, are transformed into commodities. The historical broadening and deepening of exchange develops the contrast between use-value and value, a contrast already latent in the very nature of commodities. The necessity for giving an external expression to this contrast, for the purposes of commercial intercourse, promotes the establishment of an independent form of commodity value; and the process goes on without pause or rest until the need is satisfied once for all by the differentiation of commodities into commodities and money. To the same extent to which the transformation of the products of labour into commodities is effected, the transformation of one special commodity into money is likewise effected.²

The direct barter of commodities has the form of the elementary expression of value in one respect, but not in another. This form is, x commodity A — y commodity B. The form of direct barter is, x use-value A — y use-value B.³ The articles A and B, in this case, are not commodities before the act of barter. Only thereby do they become commodities. The first step by which a useful object is enabled to become an exchange-value is that it should have an existence as something which has not a use-value for its

¹ Revelation, 17. 3 and 13. 17.

² By this we can plumb the profundity of petty-bourgeois socialism, which aims at the perpetuation of commodity production, while simultaneously desiring to abolish the "antagonism between money and commodities", abolish, that is to say, money itself—since money exists only in virtue of this antagonism. We might just as well try to leave Catholicism intact while abolishing the Pope! More on this point will be found in my *Zur Kritik der politischen Ökonomie*, pp. 61 et seq.

³ So long as, instead of there being an exchange between two different use-values, a medley of articles is offered as the equivalent of a single article (this often happens in dealings among savages), even the direct barter of products is in its infancy.

owner; and this happens when it forms a superfluous portion of some article that satisfies his immediate wants. Objects in and by themselves exist apart from man, and are therefore alienable by him. If this alienation of objects is to be reciprocal, all that is requisite is that human beings shall tacitly confront one another as the individual owners of such alienable objects, and shall thus confront one another as mutually independent persons. But no such relation of mutual independence exists for the members of a primitive community, whether this take the form of a patriarchal family, or that of an ancient Indian commune, or that of the Inca State in Peru, etc. Commodity exchange begins where community life ends; begins at the point of contact between a community and an alien community, or between the members of two different communities. But as soon as products have become commodities in the external relations of a community, they also become, by repercussion, commodities in the internal life of the community. At first, the quantitative proportions in which they are exchanged one for another is a matter of chance. They are exchangeable because their owners voluntarily determine to alienate them reciprocally. By degrees, however, the want for useful objects of alien manufacture becomes established. The continual repetition of exchange, makes of exchange a habitual social process. In course of time, therefore, at least a part of the products of labour must be intentionally produced for exchange. From this moment there ensues a cleavage between the utility of things in so far as they directly satisfy wants, and their utility in so far as they are *ex-change-able* for exchange. Their use-value parts company with their exchange-value. On the other hand, the quantitative ratios in which they are exchanged one for another come to depend upon their production. Custom stamps them as values having definite magnitudes.

In barter, every commodity is for its owner a direct means of exchange; and to the one who is not its owner it is an equivalent, but only in so far as it has a use-value for the latter. At this stage, therefore, the articles exchanged do not acquire a value form independent of their own use-value, or independent of the individual wants of those who effect the exchange. The necessity for a value form grows as there is an increase in the number and the variety of the commodities exchanged. The problem and the means of

solution arise simultaneously. Intercourse in virtue of which the owners of commodities exchange their own articles for various other articles, and compare their own articles with various other articles, never takes place without leading the various owners of the various kinds of article to exchange these for one special article in which the values of all the others are equated. Such a third commodity, inasmuch as it comes to function as equivalent for various other commodities, acquires, though within narrow limits, a generalised or social equivalent form. This generalised equivalent form comes and goes with the momentary social contacts that call it into existence. By turns, and transiently, it is assumed by this commodity or by that. As the exchange of commodities develops, however, it tends to become attached firmly and exclusively to particular kinds of commodities, to become crystallised, that is to say, in the money form. To begin with, it is a matter of chance to which kind of commodity this character will become attached. In the main, however, two circumstances are here determinative. The money form attaches, either to the most important articles of exchange from outside, and these, in fact, are the natural phenomenal forms of the exchange-value of the home products; or else it attaches itself to some useful object, such as cattle, which constitutes the most important among the alienable articles of indigenous property. Nomadic peoples are the first to develop the money form, because all their possessions are of a movable kind, and are therefore directly alienable; and because their mode of life is continually bringing them into contact with alien communities—a contact which invites the exchange of products. Human beings have often made other human beings, in the form of slaves, the primitive kind of money; but they have never used land in this way. Such an idea could only arise in a bourgeois society whose development was far advanced. It dates from the closing third of the seventeenth century, and no attempt was made to carry it out upon a national scale until a century later during the French bourgeois revolution.

In proportion as exchange bursts its local bonds, and in proportion, therefore, as the value of commodities broadens more and more into an embodiment of generalised human labour, the money form is assumed by such commodities as are best equipped by nature for the performance of the

social function that devolves upon a general equivalent; it is assumed by the precious metals.

The truth of the proposition that "although gold and silver are not by nature money, money is by nature gold and silver,"¹ is shown by the suitability of the physical properties of these metals for their functioning as money.² Hitherto, however, we have made acquaintance with only one function of money, that in which it serves as the phenomenal form of commodity value, or as the material in which the magnitudes of the values of commodities express themselves socially. Nothing but a substance whose every specimen has identical and uniform qualities can serve as an adequate phenomenal form of value, or as the embodiment of abstract and therefore uniform human labour. On the other hand, since the difference between magnitudes of value is purely quantitative, the commodity which is to function as money must be susceptible of purely quantitative differentiations, this meaning that it must be freely divisible at will, and yet capable of being reassembled out of the parts into which it has been divided. These qualities are among the natural attributes of gold and silver.

The use-value of the commodity which functions as money is twofold. In addition to its particular use-value as a commodity (gold, for instance, can be used for stopping teeth, as the raw material of articles of luxury, and so on), it acquires a formal use-value, arising out of its specific social functions.

Since all other commodities are merely particular equivalents of money, whereas money is their general equivalent, they, as particular commodities, comport themselves to money as the generalised commodity.³

We have seen that the money form is merely the reflexion of the relations between all other commodities, a reflexion which has become firmly attached to one commodity. That money is a commodity,⁴ therefore, is only a new discovery

¹ Karl Marx, *op. cit.*, p. 133.—Also: "Metals are . . . naturally money," Galvani, *Della eletricita*, in Castaldi's collection, modern section, vol. III, p. 71.

² For further details on this subject see, in my just quoted work, the chapter on the precious metals.

³ "Money is the universal merchandise," Verri, *op. cit.*, p. 16.

⁴ "Silver and gold themselves, which we may call by the general name of bullion, are . . . commodities, . . . rising and falling in . . . value. . . . Bullion, then, may be reckoned to be of higher

for those who, when they analyse it, set out from its fully developed shape. The process of exchange, when transforming a commodity into money, does not endow it with value, but gives the value it already possesses a specific form. Nevertheless, owing to a confusion between value in general and the specific form of value, many writers have regarded the value of gold and silver as imaginary.¹ Since money, in certain of its functions, can be replaced by mere symbols of itself, another error has arisen, the belief that money is merely a symbol. However, behind this error there lurked a foreshadowing of the recognition that the money form of an object is not an inseparable part of that object, but is merely a phenomenal form of the social relations which the object masks. In this sense, every commodity might be regarded as a symbol, inasmuch as, in so far as it has value, it is only a material wrapping for the human labour which has been expended in producing it.² But, while

value, where the smaller weight will purchase the greater quantity of product or manufacture of the country." *A Discourse of the General Notion of Money, Trade, and Exchange, as they stand in Relation to each other, by a Merchant, London, 1695, p. 7.*—"Silver and gold, coined or uncoined, though they are used for a measure of all other things, are no less a commodity than wine, oil, tobacco, cloth, or stuff." *A Discourse concerning Trade, and that is particular of the East Indies, London, 1689, p. 1.*—"The stock and riches of the kingdom cannot properly be confined to money, nor ought gold and silver to be excluded from being merchandise." *The East India Trade a most profitable Trade, London, 1677, p. 4.*

¹ "Gold and silver have value as metals prior to being money," Galiani, *op. cit.*—Locke wrote: "The universal consent of mankind gave to silver, on account of its qualities which made it suitable for money, an imaginary value."—Law, on the other hand, enquired: "How could different nations give an imaginary value to any single thing, . . . or how could this imaginary value have maintained itself?" But the following shows how little he himself understood about the matter: "Silver was exchanged in proportion to the value in use it possessed, consequently in proportion to its real value. By its adoption as money it received an additional value." John Law, *Considérations sur le numéraire et le commerce*, in E. Daire's *Œconomiques des lumières du XVIII^e siècle*, p. 470.

² "Money is the symbol of commodities," V. de Forbennah, *Éléments de commerce*, new edition, Leyden, 1778, vol. II, p. 143—"As a symbol, it is attracted by commodities." *Ibid.*, p. 153—"Money is a symbol of a thing, and represents it," Montesquieu, *Esprit des lois*, Œuvres, London, 1787, vol. II, p. 2.—"Money is not merely a symbol, for it is *stock* wealth: it does not represent values, but is their equivalent." Le Trousse, *op. cit.*, p. 910.—"When we contemplate the notion of value, we are regarding the thing itself as nothing more than a symbol, and it exists, not as itself,

we are told that the social characters assumed by things, or the material forms assumed by the social qualities of labour, upon the foundation of a definite method of production, are mere symbols, we are at the same time informed that these characteristics are arbitrary fictions, the product of the human imagination. This was the mode of explanation fashionable in the eighteenth century. Since people were unable to account for the origin of the perplexing forms assumed by the social relations between man and man, they tried to divest them of their necessary characteristics, temporarily at least, by ascribing to them a conventional origin.

I have already pointed out that the equivalent form of a commodity does not imply the quantitative determination of the magnitude of its value. When we know that gold is money, and is therefore directly exchangeable for all other commodities, this does not carry with it the knowledge what the value of, say, 20 lbs. of gold may be. Like every other commodity, gold can only express the magnitude of its value in the form of a relation to other commodities. Its own value is determined by the amount of labour time needed for its production, and that value secures expression in the quantum of any other commodity in which an equal amount of labour time is congealed.¹ At the source of its

but as what it is worth." Hegel, *op. cit.*, p. 100.—Long before the economists, the lawyers had arrived at the idea that gold is merely a symbol, and that the value of the precious metals is purely imaginary. They reached this notion when doing syncretistic service to the crowned heads, supporting the right of the monarchs to debase the coinage, throughout the Middle Ages, appealing to the traditions of the Roman Empire and to the conceptions of money to be found in the *Pandects*. An apt scholar of theirs, Philip of Valois, in a decree issued in the year 1346, says: "No one can or should doubt that to us and to our royal majesty alone accrues the occupation, the fact, the state, the provision, and all the ordinance of money: to give them such currency, and at such a price, as it may please us and seem good to us."—It was a maxim of Roman law that the value of money was fixed by imperial decrees, and the treatment of money as a commodity was expressly forbidden. "No one has any right to buy money, for, inasmuch as money is dedicated to the public use, it is improper to make a merchandise of it."—Good work on this question has been done by G. E. Pagnini, *Saggio sopra il giusto prezzo delle cose*, 1732, Cuneo, modern edition, vol. II. In the second part of his work, Pagnini directs his polemic especially against the lawyers.

"If a man can bring to London an ounce of silver out of the earth in Peru, in the same time that he can produce a bushel of corn, then one is the natural price of the other; now, if by reason

production, such a quantitative determination of its relative value is effected by means of barter. Its value is already determined at the time when it steps into circulation as money. In the closing decades of the seventeenth century, people already realised that money is a commodity, but this was merely the initial stage of the analysis.—The difficulty that faces us is, not the understanding that money is a commodity, but the understanding how, why, and by what means, a commodity can be money.¹

We have seen that already in the simplest expression of value, x commodity A = y commodity B, the thing in which the magnitude of the value of another thing is expressed appears to possess its equivalent form independently of this relation, to possess it as a social natural quality. We traced the way in which this false semblance becomes consolidated. The consolidation is complete as soon as the general equivalent form has coalesced with the bodily form of one particular kind of commodity, as soon as it has crystallised into the money form. What happens is, not that a commodity assumes the aspect of money because all other commodities universally express their values in it; but the converse of this, that they universally appear to express their values in it because it is money. The intermediate steps of the process vanish in the result, and leave not a trace

of new and more tender mines a man can procure two ounces of silver as easily as he formerly did one, the corn will be as cheap at two shillings a bushel as it was before at five shillings, *ceteris paribus*." William Petty, *A Treatise on Taxes and Contributions*, London, 1667, p. 31.

¹ Professor Roscher instructs us as follows: "Erroneous definitions of money can be classified in two main groups: those which regard it as something more than a commodity, and those which regard it as something less." To this succeeds a confused catalogue of works upon the nature of money, a catalogue which shows that Roscher has not the remotest insight into the real history of the theory of money. Then he draws a moral: "Moreover, it cannot be denied that most modern political economists have failed to keep sufficiently in view the peculiarities which distinguish money from other commodities. [It is, therefore, after all, either more or less than a commodity!] . . . So far, then, the semi-mercantile reaction of Gailk. is not altogether without justification." Wilhelm Roscher, *Die Grundlagen für Nationalökonomie*, third edition, 1858, pp. 267-270. —More; less; sufficiently; so far; not altogether! What precision of terms! This is the eclectic professorial twaddle which Herr Roscher modestly describes as "the anatomico-physiological method" of political economy! He must be credited, at least, with one discovery, to wit, that money is "a pleasant commodity".

behind. Without any cooperation on their part, commodities find their own form of value ready-made in the shape of another commodity that exists outside and beside them. These things, gold and silver, as they come out of the bowels of the earth, are simultaneously the direct incarnation of all human labour. Hence the magic of money. That human beings are behaving atomistically in the extant social process of production, and that therefore the material form of their productive relations is independent of their own control and of their conscious individual activities—these things are disclosed first of all by this, that the products of their labour, generally speaking, assume the commodity form. The enigma of the fetishistic character of money is, therefore, nothing more than the enigma of the fetishistic character of commodities, which dazzled us at first, but has now grown manifest in money.

MONEY, OR THE CIRCULATION OF COMMODITIES

1. THE MEASURE OF VALUES.

IN the present work, for the sake of simplicity, I assume throughout that gold functions as the money commodity.

The first function of gold is to provide the world of commodities with the material for the expression of their value, or to represent the values of commodities as magnitudes of the same denomination, qualitatively and quantitatively comparable. Thus it functions as the general measure of values; and only in virtue of this function does gold, being the specific equivalent commodity, become money.

It is not money that renders commodities commensurable. The very opposite is true. Because all commodities, in so far as they are values, are embodied human labour, and are therefore commensurable, their values can all be measured in one and the same specific commodity; and this latter can therefore be transformed into the common measure of their values, into money. Money as the measure of value is the necessary phenomenal form of the immanent measure of the value of commodities, namely labour time.⁴

⁴ The question why money does not itself directly represent labour time, so that, for instance, a printed piece of paper can represent a hour of labour, comes simply to this—the question why, given the production of commodities, the products of labour must take the form of commodities. This is evident, seeing that their taking the form of commodities implies their differentiation into commodities and money. Were it otherwise, individual labour could be treated as directly social labour, which is its opposite. I have elsewhere (*op. cit.*, pp. 61 et seq.) made a searching examination into the utopian idea of “labour money” in a society based on commodity production. On this point I will only say, further, that the Owenite “labour money” is just as little “money” as a ticket for the theatre is “money”. Owen presupposes directly associated labour, a method of production diametrically opposed to commodity production. The labour certificate is merely evidence of the part taken by an individual in the joint labour, and of his right to a certain share in the joint product destined for consumption. But Owen never thinks of presupposing commodity production, and, nevertheless, by playing some sort of hanky-panky with money, attempting to evade the necessary consequences of commodity production.

The expression of the value of a commodity in gold, x commodity A = y money commodity, is its money form or its price. One isolated equation, such as 1 ton of iron = 2 ounces of gold, now suffices to give an adequate social representation of the value of the iron. The equation need no longer figure as a link in a chain of equations expressing the value of all other commodities; for gold, the equivalent commodity, now has the character of money. The generalised form of the relative value of commodities has resumed its original shape of the simple or isolated relative form of value. On the other hand, the extended relative expression of value, or the endless series of relative expressions of value, has become the specific relative form of value of the money commodity. This series, however, is already socially given in the prices of commodities. You need merely read a list of current prices backwards, and you will find the magnitude of value of money expressed in terms of all possible commodities. But, on the other hand, money has no price. If we were able to put it on an equal footing with all other commodities in this respect, we should be obliged to equate it to itself as its own equivalent.

The price, or the money form, of commodities is, like their form of value generally, distinct from their palpable and real bodily form. It is, that is to say, only an ideal or imaginary form. The value of iron, linen, wheat, etc., though it is invisible, exists in these things; it is made ideally perceptible through their equivalence with gold, through a relation to gold which, so to say, exists only as a phantom in the other things' heads. The guardians of commodities, therefore, must provide these heads with tongues, must attach paper labels to their bodies, whereby their prices can be disclosed to the world at large.¹ Seeing that the

¹ Savages and semi-civilised races make a different use of the tongue. Captain Parry, writing about the inhabitants on the west coast of Baffin's Bay, and referring to articles offered in barter, says: "In this case they licked it twice to their tongues, after which they seemed to consider the bargain satisfactorily concluded." In like manner, the eastern Eskimos licked the articles they received in exchange. If the tongue is thus used in the north as the organ of appropriation, we need not be surprised to find that in the south the belly is regarded as the organ of accumulated property, and that a Kaffir should estimate a man's wealth by the size of this part of his body. The following fact indicates that the Kaffirs know what they are about. The British Health Report of 1884 showed that a considerable part of the working class did not secure a sufficiency of fat-

expression of the values of commodities in gold is ideal, the money requisite for this operation can also take the form of imaginary or ideal gold. Every trader knows that when he gives the value of his goods the form of price, the form of imaginary gold, he is still a long way from having turned them into actual money; and he knows that he can estimate in that metal millions of pounds' worth of commodities without using an atom of real gold. When, therefore, money serves as a measure of value, the money is only imaginary or ideal money. This circumstance has given rise to the wildest theories.³ Although imaginary money serves as the measure of value, price depends upon real or substantial money. The value, that is to say the amount of human labour, contained (for example) in a ton of iron, is expressed in an imaginary amount of the money-commodity containing an identical quantity of labour. According, therefore, as gold or silver or copper is used as the measure of value, the value of the ton of iron will be expressed by different prices; or, rather, will be represented by very different quantities of gold or silver or copper.

If, therefore, two different commodities, such as gold and silver, simultaneously function as measures of value, all commodities have two different expressions of price, gold prices and silver prices, which exist peacefully side by side so long as the ratio of value between silver and gold remains unaltered — 15 : 1, let us say. Every change in this ratio of values, however, disturbs the ratio between the gold prices and the silver prices of commodities, thus giving factual proof that a double standard of value is inconsistent with the functions of such a standard.⁴

forming food. Thereupon a certain Dr. Harvey (not to be confounded with the famous discoverer of the circulation of the blood) did well for himself by advertising recipes for reducing the superfluous fat of the bourgeoisie and the aristocracy.

³ Cf. Karl Marx, *Zur Kritik der politischen Ökonomie*, pp. 33 et seq., concerning theories of the unit of measurement of money.

⁴ "Wherever gold and silver have been legally declared to be measures of value for simultaneous use, the vain attempt has been made to treat them as one and the same material. The assumption that there is an invariable ratio between the quantities of gold and silver, respectively, in which a given quantity of labour time is incorporated, is, really, an assumption that gold and silver are of the same material, and that a definite quantity of the less valuable metal, silver, constitutes an unalterable fraction of a definite quantity of gold. From the reign of Edward III down to the days of

Commodities with definite prices present themselves under the form: a commodity A = x gold; b commodity B = z gold; c commodity C = y gold; and so on. In the foregoing equations, a, b, and c represent definite quantities of the commodities A, B, and C; while x , z , and y represent definite quantities of gold. The values of the commodities are therefore transformed into imaginary quantities of gold of varying magnitude; are so transformed despite the perplexing multifariousness of the commodities; respectively become magnitudes of the same denomination, gold magnitudes. As such varying quantities of gold, they can be compared one with another, measured one against another; and it becomes a technical necessity to relate them to a fixed quantity of gold as a unit measure. This unit, by subsequent division into aliquot parts, undergoes further development as the standard. Gold, silver, and copper already possess such standard measures before they become money, inasmuch as they can be weighed in accordance with an accepted standard. Thus a pound may serve as the unit of mass, and this pound can either be subdivided into ounces, etc., or multiplied to form hundredweights,

George II. the history of the English currency is the history of a continuous series of disturbances arising out of the conflict between the legal fixing of a ratio between gold and silver, on the one hand, and their actual fluctuations in value, on the other. At one moment, gold would be estimated at too high a value; at another moment, silver. The metal which for the time being was estimated at less than its value was withdrawn from circulation, the coins being melted down, and the bullion exported. Thereupon, the ratio between the two metals was altered by law, but ere long the new nominal ratio came into conflict once more with the real one.—In our own time, the slight and transient fall in the value of gold as compared with silver, resulting from the Indo-Chinese demand for silver, produced the same phenomena in France on a far more extended scale—for silver was exported, and was driven out of circulation by gold. During the years 1855, 1856, and 1857, the excess of gold imports over gold exports in that country amounted to £41,580,000, and the excess of silver exports over silver imports amounted to £14,704,000. In fact, in countries where both metals are legally adopted as measures of value, so that both are legal tender, and every one has the option of paying either in gold or silver as he pleases, the metal that rises in value is at a premium, and becomes a commodity like any other whose price is measured in the over-estimated metal, which latter alone serves as the real standard of value. All historical experience in this domain amounts to a single demonstration that, wherever two commodities are legally ordained to function as measures of value, in actual practice one of them only maintains its place as the standard." Karl Marx, *op. cit.*, pp. 32-33.

etc.¹ That is why, in all metallic currencies the names given to the standards of money or of price were originally taken from preexisting names of the standards of weight.

Money fulfils two entirely distinct functions, as the measure of value, and as the standard of price. It is the measure of value, because it is the social incarnation of human labour; it is the standard of price, in so far as it exists in the form of a fixed weight of metal. As the measure of value, it serves to transform the values of the manifold commodities into prices, into imaginary quantities of gold; as the standard of prices, it measures these quantities of gold. The measure of values measures commodities considered as values; the standard of prices measures, on the contrary, quantities of gold by a unit quantity of gold, not the value of one quantity of gold by the weight of another. If gold is to function as the standard of prices, a definite weight of gold must be fixed upon as the unit. Here, as whenever quantities of the same denomination are measured, it is of the utmost importance that there should be an unvarying unit of measurement. Consequently, the standard of prices will fulfil its function better in proportion to the degree to which one and the same quantity of gold can unalterably serve as the unit of measurement. But gold can only serve as the measure of values because it is itself a product of labour, and therefore potentially variable in value.²

Now, first of all, it is clear that a change in the value of gold does not in any way impair its function as a standard of prices. However much the value of gold may vary, specific quantities of gold always maintain the same value ratio one to another. Even if the value of gold could fall 1,000%, after the fall, as before, 12 ounces of gold would

¹ The peculiar circumstance that in England, though the ounce of gold serves as the unit of the standard of money, the pound sterling does not form an aliquot part of it, has been explained as follows: "Our coinage was originally adapted to the employment of silver only, hence an ounce of silver can always be divided into a certain aliquot number of pieces or coins; but as gold was introduced at a later period into a coinage adapted only to silver, an ounce of gold cannot be coined into an aliquot number of pieces." MacLaren, *A Sketch of the History of the Currency*, London, 1851, p. 26.

² In the works of English writers on currency, there is an unspeakable confusion between the measure of value and the standard of prices (or standard of value). Their functions as well as their names, are continually being interchanged.

have twelve times as much value as 1 ounce of gold, and, as far as prices are concerned, we have only to do with the ratio between various quantities of gold. Since, on the other hand, an ounce of gold remains an ounce of gold no matter whether the value of gold rises or falls, the aliquot parts of this ounce of gold are not altered in any way either, and the gold, as a fixed standard of prices, can therefore continue to perform its service no matter how much its value may change.

Nor does a change in the value of the gold hinder the performance of its function as a measure of value. The change affects all commodities simultaneously, and therefore, other things being equal, their reciprocal relative values will remain unchanged, although, with the change in the value of gold, these values will have to be expressed in higher or lower gold prices.

Just as when we estimate the value of a commodity in terms of the use-value of any other commodity, so when we estimate the value of commodities in gold, we assume nothing more than that the production of a given quantity of gold costs, at the given time, a given amount of labour.

As regards the fluctuations in the prices of commodities generally, the laws of elementary relative value previously studied apply. A general rise in the prices of commodities can only occur, the value of money remaining unchanged, if the values of the commodities rise; and, if the values of commodities remain unchanged, a general rise in prices can only occur when the value of money falls. Conversely, the prices of commodities can only undergo a general fall, the value of money remaining unchanged, when the values of commodities fall; whereas, if the values of commodities remain unchanged, their prices can only fall when the value of money rises. But it by no means follows from this that an increase in the value of money will lead to a corresponding decrease in the prices of commodities, and that a decrease in the value of money will lead to a corresponding rise in the price of commodities. Such proportional changes of price occur only in the case of commodities whose values remain constant while the value of money is rising or falling. When, for example, the values of commodities rise simultaneously with and proportionally to that of money, there is no alteration in price. If their values rise slower or faster than the value of money rises, the fall or the rise in their

prices will be determined by the difference between the change in their value and the change in the value of money; and so on.

Now let us turn to consider the price form.

By degrees there arises a discrepancy between the current names given to various weights of the precious metals when they function as money, and the actual weights those names originally represented. The discrepancy arises as the outcome of various historical causes, the chief of which are the following. (1) The import of foreign money into a country in a comparatively early state of development. For instance, in classical Rome, when silver and gold coins first came into circulation, it was as foreign wares. The names of these foreign coins differed from the indigenous weights. (2) As wealth develops, comparatively base metals are superseded as measures of value by comparatively precious metals. Silver replaces copper, and gold replaces silver, however much this chronological succession may conflict with pretty tales about the Golden Age. At one time, for instance, the "pound" was the money name for an actual pound of silver. When gold replaces silver as the measure of value, the same name will be attached to, perhaps, $\frac{1}{2}$ of a pound of gold, or to some other fraction, according as the value ratio between gold and silver may vary. Thenceforward, "pound" as a money name and as the ordinary name for a definite weight of gold have diverged one from the other.* (3) The debasing of the currency carried on by sovereign rulers for century after century, until of the original weights of the coins nothing was left but the names.†

Thanks to these historical processes, the separation of the money names of the weights of metals from their ordinary names becomes enshrined in customary speech. Inasmuch as the monetary standard is, on the one hand, purely conventional, while, on the other hand, it needs to be universally valid, it comes, in the end, to be regulated by

* Thus the English pound sterling denotes less than $\frac{1}{2}$ of its original weight, the Scottish pound (before the union), denoted only $\frac{1}{4}$; the French livre $\frac{1}{2}$; the Spanish maravedí, less than $\frac{1}{1000}$; the Portuguese rei, a still smaller fraction.

† "Monies which to-day are imaginary, are in any nation the most ancient. At one time, all of them were real, and because they were real they were used to reckon with." Galland, *Dictionnaire*, p. 133.

law. A definite weight of one of the precious metals, as, for instance, an ounce of gold, is officially subdivided into aliquot parts, which receive legal baptismal names: pound, taler, etc. Such an aliquot part, which then becomes the real monetary unit, is subdivided into other aliquot parts, which likewise receive legal baptismal names: shilling, penny, etc.² Afterwards, as before, definite weights of metal form the standard of metallic money. The only change has been in the subdivision and the denomination.

The prices, or the quantities of gold, into which the values of commodities are transformed in the world of the ideal, are, therefore, now expressed in the names of coins, or in the legally valid names of the subdivisions of the gold standard. Hence, instead of saying that a quarter of wheat is worth an ounce of gold, we say that it is worth £3 17s. 10½d. In this way commodities express by their prices how much they are worth; and, whenever it is a question of fixing the value of an article in its money form, money serves as "money of account."³

The name of a thing is quite external to the nature of that thing. I know nothing about a man simply because I know that he is called James. In like manner, every trace of the relation of value has disappeared in the name of the coins pound, taler, franc, ducat, etc. The confusion that arises from attributing a hidden meaning to these cabballistic signs is all the greater, inasmuch as the money names express both the values of commodities, and, at the same time, aliquot parts of the weight of the metal that is the standard of money.⁴ On the other hand, it is absolutely

² David Urehart, in his *Familiar Words*, comments on the inconsistency [!] that nowadays a pound sterling, which is the unit of the English monetary standard, should represent a weight of about one quarter of an ounce of gold. "This is falsifying a measure, not establishing a standard." He sees in this "false denomination" of the weight of gold, as he sees in everything else, the falsifying hand of civilization.

³ When Anacharsis was asked for what purposes the Greeks used money, he answered: "For reckoning".

⁴ "Owing to the fact that money, when serving as the standard of price, presents itself under the same names as do the prices of commodities, and that therefore the sum of £3 17s. 10½d. may signify, on the one hand, an ounce of gold, and, on the other, the value of a ton of iron, this reckoning name of money has been called its mint price. Hence has arisen the extraordinary notion that the value of gold (or silver) is estimated in its own substance, and that gold (or

essential that value, in order that it may be distinguished from the multifarious bodily forms of commodities, should assume this particular form, which, materially considered, is unmeaning, being purely social.¹

The price of a thing is the money name of the value embodied in that thing. To say, therefore, that a commodity is equivalent to the sum of money constituting its price, is a tautological expression²; just as, speaking generally, the expression of the relative value of a commodity is always the expression of the equivalence of two commodities. But although price, being the exponent of the magnitude of the value of a commodity, is the exponent of its exchange ratio with money, it does not follow that the exponent of this exchange ratio is necessarily the exponent of the magnitude of the value of the commodity. Suppose that two equal quantities of socially necessary labour are respectively represented by 1 quarter of wheat and £2 (nearly half an ounce of gold), then £2 is the expression in money of the magnitude of the value of the quarter of wheat, is the price of a quarter of wheat. If, now, circumstances allow of this price being raised to £3, or enforce its reduction to £1, then, although £1 and £3 may be too small

silver) in contradistinction to all other commodities, has a price fixed by the State. The mistake originated in the idea that to give a reckoning name to a definite weight of gold is the same thing as fixing the value of that weight of gold." Karl Marx, *op. cit.*, p. 52.

¹ See the discussion of the theories of the monetary unit in my *Kritik der politischen Ökonomie*, pp. 53 et seq. Fantasies concerning an increase or decrease in the "mint price" of money, brought about by transferring to greater or smaller weights of gold or silver the names which have already been legally assigned to fixed weights of those metals, these fantasies (in so far as they aim, not at getting the better of creditors whether public or private by means of deviously devised financial operations, but at the elaboration of an economic panacea, as, for instance, by declaring that a quarter of an ounce of gold shall in future be divided into forty shillings instead of twenty) have been so exhaustively discussed by William Petty in his *Quantulumcunque concerning Money, to the Lord Margais of Halifax*, 1682, that even his immediate followers, Sir Dudley North and John Locke, not to mention later ones, could only water his words down. He writes (*op. cit.*, p. 36): "If the wealth of a nation could be decupled by a proclamation, it were strange that such proclamations have not long since been made by our governors."

² "Were it otherwise, we should have to admit that a value of one million in money is worth more than an equal value in merchandise." Le Tourne, *op. cit.*, p. 322. This, he says, would amount to asserting that "a value is worth more than an equal value".

or too great to express properly the magnitude of the value of the wheat, nevertheless they are its prices; for, in the first place, they are the form under which its value appears, i.e. money; and, in the second place, they are the exponents of its exchange ratio with money. If the conditions of production remain constant, if, that is to say the productivity of labour remains unchanged, then the same amount of social labour time will have to be expended in the reproduction of a quarter of wheat, both before and after the change in price. This circumstance is independent of the will of the producer of wheat and of the will of other owners of commodities. The magnitude of the value of commodities therefore expresses a relation of social production; it expresses the necessary connexion between a certain article and the amount of social labour time needed to produce it. As soon as magnitude of value is transformed into price, this necessary relation assumes the form of a more or less accidental exchange ratio between one commodity and another, the latter being the money commodity. But the exchange ratio may serve to express, either the real magnitude of the value of the commodity, or the more or the less for which, in given circumstances, it may be parted with. Thus the possibility of a quantitative incongruity between price on the one hand and magnitude of value on the other, the possibility of a divergence of price from magnitude of value, is inherent in the price form. This is not a defect, for, on the contrary, it admirably adapts the price form to a method of production whose inherent laws can only secure expression as the average results of apparently lawless irregularities that compensate one another.

The price form, however, is not only compatible with the possibility of quantitative incongruity between magnitude of value and price, that is to say between magnitude of value and its monetary expression; for it may also conceal a qualitative inconsistency, of such a kind that price may completely cease to be an expression of value, notwithstanding the fact that money is only the value form of commodities. Things which in and by themselves are not commodities, such as conscience, honour, etc., can be put up for sale by their owners, and can thus, through their price, acquire the commodity form. Hence a thing can have a price without having value. In that case, the price expression is imaginary, like certain magnitudes used in mathematical calculations.

On the other hand, the imaginary price form may sometimes conceal a direct or indirect value relation; for instance, uncultivated land may have a price, though it has no value, seeing that no human labour has been incorporated in it.*

Price, like the relative value form in general, expresses the value of a commodity (such as a ton of iron) by saying that a given quantity of an equivalent (such as an ounce of gold) is directly exchangeable for iron. But it by no means states the converse, that iron is directly exchangeable for gold. In order, therefore, that a commodity may in practice function as an exchange-value, it must quit its bodily shape, must transform itself from imaginary gold into real gold, although to the commodity this transubstantiation may be a more difficult matter than, in the Hegelian "conceptual world", is the transition from "necessity" to "freedom", more difficult than to a lobster is the casting of its shell, more difficult than was to St. Jerome the putting off of the old Adam.¹ A commodity may, in addition to its real form (iron, for instance) have, in its price, an ideal form, an imaginary gold form; but it cannot simultaneously be real iron and real gold. To fix its price, the equating of it with imaginary gold suffices. But if it is to serve its owner as a general equivalent, it must be actually replaced by gold. If the owner of the iron were to go to the owner of some other commodity which was a candidate for exchange, and were to refer this owner to the price of the iron as proof that it was already money, he would get the same answer as St. Peter in heaven gave to Dante, when the latter recited the creed:

... Very well has been gone over
Already of this coin the alloy and weight;
But tell me if thou hast it in thy purse!*

The price form therefore includes two notions, that a commodity is exchangeable for money, and the necessity for such an exchange. On the other hand, gold can only

* In youth, Jerome had had to wrestle with the bodily flesh, as his tale of his fight in the desert with mental images of lovely women shows. In like manner, when he was old, he had to wrestle with the spiritual flesh. "I thought," he says, "I was in spirit before the judge of the universe."—"Who art thou?" asked a voice. "I am a Christian."—"Thou liest," thundered back the great judge; "thou art naughty but a Coccyrolian."

¹ *Paradise, Canto xiv, ll. 83-85.*

CIRCULATION OF COMMODITIES & serve as an ideal measure of value because, in the process of exchange, it has already established itself as the money commodity. Behind the ideal measure of value lurks the hard cash.

2. THE MEDIUM OF CIRCULATION.

A. Metamorphosis of Commodities

We have seen that the exchange of commodities implies contradictory and mutually exclusive relations. The differentiation of commodities into commodities and money does not sweep away these inconsistencies, but it develops a form in which they can exist side by side. This is generally the way in which real contradictions are reconciled. For instance, it is a contradiction to say that a body is continually falling towards another and is at the same time continually flying away from it. The ellipse is a trajectory which, while allowing this contradiction to subsist, at the same time solves it.

In so far as the process of exchange transfers commodities from the hands of a person for whom they are not use-values into the hands of a person for whom they are use-values, it is a social circulation of matter. The product of one kind of useful labour replaces the product of another kind. As soon as it has reached the spot where it can serve as a use-value, the commodity falls out of the sphere of exchange into the sphere of consumption. Our only present interest is in the sphere of exchange. We have, therefore, to contemplate the whole process of exchange from a formal point of view; restricting ourselves to a study of the change of form, the metamorphosis, of commodities which effectuates the social circulation of matter.

As a rule, this change of form is imperfectly understood. That is because (apart from the confusion that prevails regarding the fundamental notion of value) every change of form in a commodity results from the exchange of two commodities one for another, one of them being an ordinary commodity and the other the money commodity. If we confine our attention to the material fact that a commodity has been exchanged for gold, we overlook the very thing we ought to see, namely what has happened to the form of the commodity. We overlook the fact that gold as a pure commodity is not money, and that when other commodities

express their prices in gold, this gold is but the commodities themselves in a new metamorphosis, in the money form.

To begin with, commodities enter into the process of exchange just as they are, ungilded, unsugared. The process of exchange, in due course, differentiates them into commodities and money, and thus produces an outward and visible opposition, corresponding to the inherent opposition between use-value and value. Now the commodities as use-values are contraposed to money as exchange-values. On the other hand, both the opposites are commodities, both are units composed of use-value and value. But this unity of differences manifests itself at two opposite poles, and at each pole in an opposite way. Being poles, they are necessarily opposite and necessarily connected. The commodity is really a use-value; the essentiality of its value appears only ideally in its price, which brings it into relation with the contraposed gold as its real form of value. Conversely, the bodily substance of the gold counts only as the embodiment of value, counts only as money. In its reality, therefore, it is exchange-value. Its use-value manifests itself solely in the ideal form, in the series of expressions of relative value, in which it enters into relation with the contraposing commodities as the complex of its real use forms. These antagonistic forms of commodities are the real forms in which the process of their exchange has its movement and its being.

We will now accompany the owner of some commodity—let us say our old acquaintance the weaver of linen—to the scene of action, the market where exchanges are effected. His commodity, 20 yards of linen, has a definite price, its price is £2. He exchanges it for £2, and, being a man of the old school, he then exchanges his £2 for a family bible priced at the same figure. The linen, which for him was only a commodity, a depository of value, has been alienated in exchange for gold, which is the linen's form of value; and from this form a further change has been effected into another commodity, the bible, which he takes back with him as a useful object into his weaver's cottage, to satisfy the wants of those who live there by supplying them with the means of edification. Thus the process of exchanging commodities is completed in two opposed and complementary metamorphoses: the transformation of a commodity into money, and the retransformation of the money

into a commodity.* The two phases of this metamorphosis are both of them transactions effected by the owner of the commodity. He sells, exchanges his commodity for money; and he buys, exchanges his money for a commodity. The two transactions have a unitary character, that of selling in order to buy.

The result of the whole traffic, as regards the weaver, is this. Instead of being in possession of the linen, his original commodity, he now has a bible, another commodity of the same value but having a different utility. In like manner, he procures what other means of subsistence and means of production he needs. From his point of view, the whole process achieves nothing more than the exchange of the product of his labour for the product of another's labour; nothing more than an exchange of products.

The exchange of commodities, therefore, is effected by means of the following changes of form:

$$\begin{array}{c} \text{Commodity—Money—Commodity} \\ C—M—C \end{array}$$

The result of the whole process is, so far as concerns the objects themselves, $C—C$, the exchange of one commodity for another, the circulation of materialised social labour. When the result is achieved, the process is at an end.

C—M. First Metamorphosis of the Commodity: Sale.

The jump taken by the value of the commodity out of the body of the commodity into the body of the gold is, as I have elsewhere phrased it, the "salto mortale" [desperate leap] of the commodity. If it should fall short, then, though the commodity itself is not harmed, the owner of the commodity certainly is. Thanks to the social division of labour, his labour is as one-sided as his wants are many-sided. It is for that very reason that his product is for him nothing more than an exchange-value. But only as money can it

* "As Heraclitus says of fire, 'Fire turns into all things, and all things turn into fire'; and as money is changed for gold, so gold is changed for money." This passage is from Plutarch's *Moralia*, *Of the Word "Ei"* engraved over the Gate of Apollo's Temple at Delphi. Cap. 8. Laetzel, who quotes it in *Die Philosophie Herakleitos des Dunkeln*, Berlin, 1838, Vol. I. p. 222, comments on it as a note on p. 224, and there wrongly declares that money is nothing but a token of value.

acquire a general socially valid equivalent form—and the money is in some one else's pocket. If the money is to be extracted from that pocket, it is, above all, essential that the commodity should represent a use-value for the owner of the money. For this it is necessary that the labour which has been expended upon it shall be of a socially useful kind, of a kind that constitutes one of the branches of the social division of labour. But the division of labour is a productive organism of spontaneous growth; it has grown up, and continues to grow, behind the backs of the producers of commodities. Perhaps his commodity is the product of some new kind of labour, which aims at the satisfaction of some new want, or may even aim at arousing a new want. A particular operation, which yesterday may have been but one out of the many operations conducted by one producer in creating a particular commodity, may to-day break away from these ties, may establish itself as an independent branch of labour, and may send its incomplete product to market as an independent commodity. Circumstances may or may not be ripe for such a severance. To-day, perhaps, a product may satisfy a social want; but to-morrow the article in question may be partly or wholly superseded by some other similar product. Besides, although our weaver's labour may be a recognised branch of the social division of labour, this is not enough to guarantee the utility of his 20 yards of linen. The social need for linen has its limits like any other need, and perhaps the social demand has already been satiated by rival weavers. In that case, our friend's product is superfluous, and is therefore useless. We are told that people should not look a gift horse in the mouth, but the weaver has not gone into the market in order to make presents. Let us suppose, however, that his product really has a use-value, and therefore attracts money. The question then arises, how much money it will attract? The answer is anticipated in the price of the commodity, the exponent of the magnitude of its value. We can disregard purely subjective errors of calculation on the part of the owner of the commodity, for these will promptly secure objective correction in the market. It is assumed that he has expended the socially necessary average amount of labour time in making his product. The price of the commodity is, therefore, only the money name of the amount of social labour embodied in it. But without our friend's leave, and behind

his back, the traditional methods of production in the linen trade may have entered upon a process of fermentation. That which yesterday was unquestionably socially necessary labour time for the production of one yard of linen, has to-day ceased to be such, as the owners of money hasten to demonstrate by quoting the prices asked by various rivals of our weaver, who have brought linen to market. For, unfortunately, there are a great many weavers in the world! Lastly, however, let us suppose that no single piece of linen in the market contains more labour time than is socially necessary. Still, the totality of these pieces may contain a superfluity of expended labour time. If the market cannot stomach the whole quantity of linen at the normal price of 2s. a yard, this proves that too large a proportion of the totality of social labour time has been expended upon the weaving of linen. The effect is just the same as if each individual weaver had expended more than the socially necessary labour time upon his individual product. It is a case to which we must apply the German proverb, "caught together, hanged together." All the linen in the market counts as but one article of commerce, of which each piece is only an aliquot part. As a matter of fact, the value of each individual yard is but the materialised form of the same definite and socially determined quantity of homogeneous human labour.

We see then, that commodities are in love with money; but "the course of true love never did run smooth". The quantitative division of labour is a haphazard spontaneous growth, just like the qualitative division. The owners of commodities therefore discover that the division of labour which makes them independent private producers, also frees the social process of production, and the relations of the individual producers to one another within that process, from all dependence on the will of the producers; and that the seeming mutual independence of the individuals is supplemented by a system of general and mutual dependence through or by means of the products.

The division of labour transforms the product of labour into a commodity, and thus makes its further transformation into money essential. At the same time, thanks to the division of labour, it becomes a chance matter whether this transubstantiation will be successfully accomplished. Here, however, we are only concerned with the phenomenon in

all its purity, and we therefore assume that the process takes place normally. If it takes place at all, if the commodity is not absolutely unsaleable, the desired change of form always occurs, although the price realised may be abnormally above or below the value.

For one commodity owner, commodity is replaced by gold, and for the other, gold is replaced by commodity. What here stares us in the face is that commodity and gold have changed hands or changed places; that, in the instance we are studying, there has been an exchange effected between 20 yards of linen and £2. But for what is the commodity exchanged? For its own general value form. And for what is the gold exchanged? For a particular form of its own use-value. Why does gold confront the linen in the form of money? Because the linen's price of £2, its denomination in money, has already brought the linen into relation with gold as money. The shedding of the original commodity form is effected by the alienation of the commodity; that is to say it occurs at the moment when its use-value actually attracts the gold that previously had a merely ideal existence in its price. The realisation of the price, or of its ideal value form, is therefore at the same time the realisation of the ideal use-value of money; the transformation of a commodity into money, is at the same time the transformation of money into a commodity. The process has two aspects. From the outlook of the commodity owner it is a sale; from the opposite outlook, that of the money owner, it is a purchase. In other words, a sale is a purchase; $C-M$ is also $M-C$.¹

Hitherto the sole economic relation of human beings we have considered is the relation between owners of commodities, a relation in which they only appropriate the product of another's labour by alienating the product of their own labour. Consequently, one commodity owner can only confront the other as the owner of money for one of two reasons. It must either be because the product of his labour is endowed by nature with the money form, is the substance of money, is gold, etc.; or else it must be because his own commodity, the product of his labour, has already changed its skin, and has shed its original form as a useful

¹ "All sale is purchase." *Quesnay, Dialogues sur le commerce et les arts et métiers des artisans*, Daloz's edition, Paris, 1846, p. 170. Again, in his *Maximes générales* this same Quesnay says: "Selling is buying."

object. Of course, if gold is to play the part of money it must enter the market somewhere. The point at which gold enters the market is its source of production, where, as a direct product of labour, it is bartered for some other product of labour having an equal value. Thenceforward it always represents the realised price of some commodity.¹ Apart from the exchange of gold for commodities at the source of production of gold, in whoever's hands it may be, gold is the transformed shape of some commodity alienated by its owner; it is the product of a sale, or of the first metamorphosis, $C-M$.² Gold became ideal money, or the measure of value, because all commodities measured their value in gold, thus contrasting it ideally with their bodily form as useful objects, and making it the shape of their value. It became real money thanks to the general alienation of commodities, actually changing places with their bodily forms as useful objects, and thus becoming in very truth the embodiment of their values. When they assume this money shape, commodities shed every trace of their natural use-value, and of the particular kind of useful labour to which they owe their origin, in order to transform themselves into the uniform socially recognised embodiment of undifferentiated human labour. We cannot tell from looking at a piece of money for what particular commodity it has been exchanged. Under their money form, all commodities assume the same aspect. Money, therefore, may be muck, although muck is not money. Let us assume that the two gold pieces for which our weaver has exchanged his linen are metamorphoses of a quarter of wheat. The sale of the linen, $C-M$, is at the same time its purchase, $M-C$. But the sale is the first act of a process that ends with a transaction of an opposite kind, namely the purchase of a bible. The purchase of the linen, on the other hand, ends a movement which began with a transaction of an opposite kind, namely as the sale of a quarter of wheat. $C-M$ (linen—money), which is the first phase of $C-M-C$ (linen—money—bible), is also $M-C$ (money—linen), the last phase of

¹ "The only way in which the price of any commodity can be paid is by the price of some other commodity." *Manière de la Rivière, L'ordre naturel et nécessaire des sciences politiques*, Daire's edition, p. 334.

² "In order to have this money, he must have sold something." *Ibid.*, p. 343.

another movement $C-M-C$ (wheat—money—linen). The first metamorphosis of one commodity, its transformation from the commodity form into money, is invariably, therefore, at the same time, the second and opposite metamorphosis of another commodity, its retransformation from the money form into a commodity.¹

M—C. Second or Concluding Metamorphosis of the Commodity: Purchase.

Because money is the metamorphosed shape of all other commodities, because it is the product of their general alienation, it is itself alienable without any restrictions whatever. It reads all prices backwards, and, so to say, mirrors itself in the bodies of all other commodities, which are the acquiescent material for its own transformation into a commodity. At the same time prices, the sheep's eyes cast at it by commodities, define the limits of its transformability, by pointing to its quantity. Since every commodity, when becoming money, disappears as a commodity, it is impossible to tell from looking at the money how it got into the hands of its owner or what has been transformed into it. "*Non olet pecunia*", said the Romans; "money has no smell", whatever its origin may have been. While, on the one hand, it represents a sold commodity, on the other, it represents purchasable commodities.²

$M-C$, a purchase, is at the same time $C-M$, a sale. The last metamorphosis of one commodity is, therefore, simultaneously the first metamorphosis of another commodity. For our weaver, the life cycle of his commodity ends with the bible into which he has retransformed the $\frac{1}{2}$ z. Let us suppose that the seller of the bible spends the $\frac{1}{2}$ z he has received from the weaver upon brandy. $M-C$, the concluding phase of $C-M-C$ (linen—money—bible), is also $C-M$, the first phase of $C-M-C$ (bible—money—brandy). Since the producer of commodities has only this commodity to offer, he often sells it in very large quantities; but his multiform wants constrain him to split up the price he has

¹ As before remarked, the actual producer of gold or silver is an exception. He exchanges his product directly for another commodity, without having first sold it.

² "It, in our hands, money represents the things which we may want to buy, it also represents the things we have sold in order to get this money." *Marcier de la Rivière, op. cit., p. 386.*

realised, the sum of money he has received, by expending it upon numerous different purchases. A sale therefore leads to the purchase of many different articles. The final metamorphosis of a commodity is an aggregation of the initial metamorphoses of various other commodities.

Now let us consider the completed metamorphosis of a commodity, linen for instance. The first thing we notice is that it is made up of two opposite and complementary movements $C \rightarrow M$ and $M \rightarrow C$. These two antithetical transformations of the commodity are effected by two antithetical social processes on the part of the owner of the commodity, and are reflected in the contrast between the economic characters of the two processes. As one who makes a sale, he is a seller; as one who makes a purchase, he is a buyer. But just as, in every transformation of a commodity, its two forms, the commodity form and the money form, exist simultaneously but at opposite poles, so every commodity owner is as seller confronted by a buyer, and is as buyer confronted by a seller. Just as one and the same commodity successively goes through two opposite transformations, from commodity into money and from money into commodity; so the owner of the commodity successively plays the roles of seller and of buyer. These roles of seller and buyer, therefore, are not permanently assumed, but attach themselves by turns to the various persons engaged in the circulation of commodities.

The complete metamorphosis of a commodity presupposes, in its simplest form, four extremes and three persons of the drama. First of all, the commodity is confronted by money as its value form, by the money which, in another person's pocket, has concrete reality. The owner of the commodity is, therefore, confronted by an owner of money. As soon as the commodity has been transformed into money, this money becomes its temporary equivalent form, whose use-value or content, for its part, exists in the bodies of other commodities. Money, as the goal of the first transformation, is at the same time the starting-point of the second. Thus the person who is seller in the first act, becomes buyer in the second, when a third owner of commodities confronts him as seller.¹

The two reversed phases of the metamorphosis of the

¹ "There are, then, four extremes and three contracting parties, one of whom intervenes twice." *Le Travail*, op. cit., p. 309.

commodities form a circulation: the commodity form, the shedding of the commodity form, the return to the commodity form. No doubt, the commodity here appears under two different aspects. At the starting-point, it has not a use-value to its owner; at the finish, it has. As for the money, it first appears as the solid crystal of value into which the commodity becomes transformed, and subsequently dissolves into its mere equivalent form.

The two metamorphoses which make up the circulation of a commodity, are at the same time two inverse partial metamorphoses of two different commodities. One and the same commodity (linen) opens the series of its own metamorphoses, and completes the metamorphosis of another commodity (wheat). During its first transformation, the sale, the linen plays these two parts in its own person. Thereafter entering into the chrysalis phase of gold and thus going the way of all flesh, it simultaneously completes the first metamorphosis of a third commodity. The circulation which the series of metamorphoses of every commodity goes through, is thus inextricably intermingled with the circulations of other commodities. The total of all these processes constitutes the circulation of commodities.

The circulation of commodities differs from the direct exchange of products, known as barter, in substance as well as in form. This is shown by a single glance at the course of events. The weaver has certainly exchanged his linen for a bible, has exchanged his own commodity for a commodity that belonged to some one else. But this phenomenon is only true for him. The seller of the bible, who has a taste for something that will warm up the cockles of his heart, had no thought of exchanging his bible for linen, any more than the weaver knew that wheat was being exchanged for his linen; and so it goes on. B's commodity replaces A's commodity, but A and B do not reciprocally exchange their commodities. It may, of course, happen that A and B make simultaneous purchases each from the other; but such a particular relation is by no means a necessary outcome of the general relations under which the circulation of commodities takes place. We see here, on the one hand, how the exchange of commodities breaks down the individual and local hindrances attendant upon the process of barter, and furthers the circulation of the products of human labour. On the other hand, there develops a multiplicity of social

relations that are spontaneous in their growth and are quite outside the control of the actors. The weaver is only able to sell his linen because the farmer has sold the wheat; the bible agent is only able to sell the bible because the weaver has sold linen; the distiller is only able to sell the strong waters because the bible agent has already sold the waters of eternal life; and so on.

Consequently, the process of circulation does not, like direct barter, come to an end as soon as the use-values change places or change hands. Money does not disappear because it ultimately drops out of the series of metamorphoses undergone by a particular commodity. It is constantly being precipitated into new places in the arena of circulation, places vacated by other commodities. For instance, in the complete metamorphosis of the linen (linen—money—bible), the linen drops out of circulation, and money steps into its place; then the bible drops out of circulation, and money steps into its place. When one commodity replaces another, the money commodity always remains in the hands of some third person.¹ Circulation sweats money unceasingly at every pore.

Nothing could be more absurd than the dogma that because every sale is a purchase, and every purchase a sale, therefore the circulation of commodities necessarily implies a balance between purchases and sales. If this means that the number of actual purchases is equal to the number of actual sales, it is mere tautology. But what is really implied in the assertion is that every seller brings his buyer to market. Purchase and sale are one and the same action when regarded as a mutual relation between two persons who are polar opposites, the owner of commodities and the owner of money. But purchase and sale are themselves polar opposites when regarded as the actions of one and the same person. The identity of purchase and sale therefore implies that a commodity is useless if, when thrown into the stream of the circulatory process, it fails to come forth as money; if, in other words, it is not sold by the owner of commodities, and therefore is not bought by the owner of money. The identity of purchase and sale further implies that the exchange, if successfully achieved, forms a resting phase—a

¹ Obvious as this phenomenon is, it is usually overlooked by political economists, and especially by common or garden free traders.

distinct section, long or short, in the life of the commodity. Since the first metamorphosis of the commodity is simultaneously purchase and sale, this partial process is at the same time an independent process. The buyer has the commodity; the seller has the money, that is to say a commodity which retains the power of going into circulation at any time, so that sooner or later it can return to the market. No one can sell unless another buys. But a person does not need to buy at once, simply because he has sold. Circulation makes an end of all the restrictions as to time, place, and persons imposed by the process of direct barter; and it does this by splitting up, into the antithesis of a sale and a purchase, the direct identity that in barter actually exists between the alienation of one's own product and the acquisition of the product of some other person. To say that these two independent and mutually contraposed processes have an intrinsic unity, is but another way of saying that their intrinsic unity expresses itself in an external antithesis. If the interval in time between the two complementary phases of the entire metamorphosis of a commodity becomes too great, if the cleavage between the sale and the purchase becomes too pronounced, the essential unity between sale and purchase asserts itself convulsively by producing a crisis. The antithesis that is inherent in a commodity, the antithesis between use-value and value; the contradiction involved in the fact that individual labour must simultaneously manifest itself as directly social labour; the contradiction involved in the fact that particular concrete labour only counts as abstract general labour; the antithesis between the personification of objects and the representation of persons by things—these antitheses and contradictions, all of them immanent in the commodities, acquire fully developed and mobile forms in the oppositions manifest in the metamorphosis of commodities. These forms, therefore, entail the possibility, though nothing more than the possibility, of crises. The possibility only develops into a reality as the outcome of a series of relations which, from our present standpoint of the simple circulation of commodities, do not yet exist.*

* See my remarks on James Mill in *Zur Kritik der politischen Ökonomie*, pp. 74-75.—In this connexion, I may refer to two points characteristic of the methods of apologetic economics. First of all, we have the identification of the circulation of commodities with

Money acquires its function as medium of circulation through being the instrument whereby the circulation of commodities is effected.

B. Currency of Money

The change of form, $C-M-C$, by which the circulation of the material products of labour is brought about, requires that a definite value shall constitute the starting-point of the process in the shape of a commodity, and shall, once more in the shape of a commodity, get back to the starting-point. This movement of commodities is, therefore, a circulation. On the other hand, the very nature of the circulation of commodities prohibits a circulation of money, in the strict sense of the term circulation. The result of the circulation of commodities is that the money involved in the process moves farther and farther away from its starting-point, and does not return to the starting-point. As long as the seller keeps his grip upon the money which is the transformed shape of his commodity, the commodity is in the first phase of its metamorphosis, or has only completed the first half of its circulation. But when the process of selling in order to buy is finished, the money is yet farther away from the hand of its original owner. No doubt if the weaver, after he has bought the bible, sells some more linen, money comes back into his hands. But it does not get there thanks to the circulation of the first 20 yards of linen; that circulation put the money into the hands of the seller of the bible. It only comes back through the renewal or repetition of the process of circulation, with

direct barter, an identification effected by simply ignoring differences. Secondly, we have the attempt to explain away the contradictions of the capitalist method of production, this taking the form of an attempt to reduce the relations of the persons engaged in that production to the simple relations arising out of the circulation of commodities. The production and circulation of commodities, however, are phenomena belonging to the most diversified methods of production, though belonging to them in varying degrees. If we are acquainted with nothing more than the abstract categories of circulation which are common to all these methods of production, we cannot possibly know anything about the specific differences between these methods, nor can we pronounce a judgment upon them. In no other science is a parade of elementary commonplaces so fashionable as in political economy. For instance, J. B. Say places himself as an authority on crises, because, forsooth, he knows that a commodity is a product!

a fresh commodity, and the renewed process ends with the same result as the first one. Thus the movement directly imparted to money by the circulation of commodities presents itself as a continuous motion away from the starting-point, a course from the hands of one commodity owner into those of another. This is its currency.

The currency of money is the constant and monotonous repetition of the process above described. The commodity is always in the hands of the seller; and the money, as a means of purchase, is always in the hands of the buyer. Money only functions as a means of purchase by making the price of the commodity actual. Inasmuch as it does this, it transfers the commodity out of the hands of the seller into the hands of the buyer, while itself simultaneously passing from the hands of the buyer into those of the seller, in order to repeat the same process with another commodity. The fact that this single form of the movement of money is the outcome of the duplex form of the movement of commodities, is hidden away out of sight. The very nature of the circulation of commodities gives rise to the opposing semblance. The first metamorphosis of the commodity is visible, not only as the movement of the money, but also as the movement of the commodity; but the second metamorphosis of the commodity is only visible as the movement of the money. In the first half of its circulation, the commodity changes places with the money. Therewith its use-value falls out of circulation, falls into the sphere of consumption.* Its value form, its monetary larva, takes its place. It does not pass through the second half of its circulation in its own bodily form, but does so dressed up as gold. The continuity of the movement is, therefore, sustained by the money alone; and the very movement which, as far as the commodity is concerned, consists of two processes of an antithetical character, is, when considered as the movement of the money, always one and the same process, a change of places as between money and a succession of different commodities. The result of the circulation of commodities, the replacement of

* Even when the commodity is sold, and resold, and sold yet again (a phenomenon which does not exist for us here and now), at the last resale it falls out of the sphere of circulation into the sphere of consumption, to serve there as a means of subsistence or as a means of production.

commodities by other commodities, therefore assumes the appearance of having been effected, not by means of a change in the form of commodities, but thanks to the function of money as medium of circulation—money seeming to set passive commodities in motion, transferring them from the hands in which they are not use-values into the hands in which they are use-values; thus producing a movement which is always in the opposite direction to the movement of the money itself. Money is continually withdrawing commodities from circulation and stepping into their places, and is thus perpetually moving farther and farther away from its starting-point. Although, therefore, the movement of the money is merely an expression of the circulation of commodities, it seems as if, conversely, the circulation of commodities were only the outcome of the movement of the money.¹

On the other hand, money only has the function of a medium of circulation because it is the objectified value of commodities. Consequently, its movement as circulating medium is, in actual fact, only the movement of commodities under changed forms. Necessarily, therefore, this fact must be mirrored in the currency of money. For instance, the linen first of all changes its commodity form into its money form. The last extreme of its first metamorphosis, $C-M$, the money form, then becomes the first extreme of its last metamorphosis, $M-C$, when it is changed into the bible. But each of these two changes of form is effected by an exchange between commodities and money, by their reciprocal change of places. Certain coins enter the seller's hands as the changed form of the commodity, and then these same coins leave his hands as the absolutely alienable form of the commodity. The coins change places twice. The first metamorphosis of the linen brings them into the weaver's pocket; the second metamorphosis takes them out again. Thus the two antithetical changes of form of the same commodity are mirrored in the two movements of the money, movements in opposite directions.

If, on the other hand, the metamorphosis of the commodity is a one-sided affair, if there is only a sale, or only a purchase (whichever you please), then the money changes its place only once. Its second change of place is always the

¹ "Money has no other movement than that which is imposed on it by *procuria*." *La Trame*, *op. cit.*, p. 583.

expression of the second metamorphosis of the commodity, the expression of its retransformation from money. In the frequent repetition of the changes of place of the same coins there is mirrored, not only the series of metamorphoses of one commodity, but also the inextricable entanglement of the numberless metamorphoses of the general world of commodities. It is, moreover, self-evident that what we have been saying applies only to the simple circulation of commodities now under consideration.

Every commodity, when it first enters into circulation, when it undergoes its first change of form, does so only to fall out of circulation, to fall out of the process into which new commodities are continually entering. Money, on the other hand, as the medium of circulation, remains persistently within the sphere of circulation, and moves about in it. We have, therefore, to consider the question how much money this sphere of circulation constantly absorbs.

In a particular country, day after day, numerous, simultaneous, and therefore spatially juxtaposed, one-sided metamorphoses of commodities occur; or, to put the matter in other words, there occur numerous sales and numerous purchases. By their prices, commodities are, before their sale, equated with imaginary amounts of money. Inasmuch as the direct circulation we are now considering perpetually contraposes commodity and money each to the other in the bodily form, the commodity at the pole of sale and the money at the pole of purchase, the mass of the means of circulation requisite for the process of circulation is already determined by the sum of the prices of the commodities in circulation. What the money really represents is the quantity or sum of gold ideally expressed in advance by the sum of the prices of the commodities. The equality of these two sums is therefore self-evident. Yet we know that, the value of commodities remaining constant, their prices vary with the value of gold (the material of money); rising when the value of gold falls, and falling when the value of gold rises. According as the sum of the prices of the commodities rises or falls, the mass of money in circulation must rise or fall to the same extent. The change in the amount of the circulating medium is, in this case, certainly, caused by money itself; not, however, by its function as the medium of circulation, but by its function as the measure of value. The price of the commodi-

ties varies, first of all, inversely as the value of the money; and then the quantity of the circulating medium varies directly as the price of the commodities. The same thing would happen, if, for instance, instead of the value of gold falling, silver were to replace gold as the measure of value; or if, instead of the value of silver rising, gold were to replace silver as the measure of value. In one case, more silver must circulate than there was gold circulating before; in the other case, less gold must circulate than there was silver circulating before. In both cases, the value of the material of money would be changed, the value of the commodity which serves as measure of value, this involving a change in the price expression of the value of commodities, and this involving a change in the amount of money in circulation, the money that serves to render these prices actual. We have seen that the sphere in which commodities circulate has a hole in it through which gold (or silver, the material of money whatever it may be) enters as a commodity of given value. The value of the material of money has already been determined before money assumes its functions as measure of value, that is to say, before prices are determined. If now for instance, the value of the measure of value itself falls, this is first shown by a change in the prices of the commodities which are directly exchanged for the precious metals at the place where these are produced. The greater part of the other commodities will continue for a long time (and especially in imperfectly developed phases of bourgeois society) to be estimated by the obsolete value of the measure of value—a value which has become illusory. Nevertheless, one commodity affects another through their common value relation, so that their prices, as expressed in gold or in silver, will gradually settle down into the proportions conformable to their relative values—until, finally, the values of all commodities are estimated in terms of the new value of the metal that functions as money. This compensatory process is accompanied by a continual increase in the quantity of the precious metals, an increase that is due to their inflow in exchange for the commodities which are bartered for them at the places where gold and silver are extracted. In proportion, therefore, as commodities in general acquire their true prices, in proportion as their values are re-estimated in accordance with the new, lower, and still

declining value of the precious metals, the larger quantity of these metals requisite for the realisation of prices is already provided. An imperfect study of the phenomena which followed the discovery of new deposits of gold and silver, led in the seventeenth century, and still more in the eighteenth, to the false belief that the prices of commodities rose because more gold and silver were functioning as means of circulation. In what follows, we shall assume the value of gold to be fixed, as, in fact, it is, temporarily, at the moment when we estimate the price of a commodity.

On this supposition, then, the quantity of the medium of circulation is determined by the sum of the prices that have to be realised. If, now, we further suppose the price of each commodity to be given, the sum of the prices of all commodities will obviously depend upon the amount of commodities in circulation. We need not engage our brains much to understand that if 1 quarter of wheat costs £2, 100 quarters will cost £200, 200 quarters will cost £400, and so on; and that, therefore, as the quantity of wheat increases there will be an increase in the quantity of money that changes places with the wheat when this commodity is sold.

If the quantity of commodities remains constant, the quantity of money in circulation varies with variations in the price of commodities. The quantity of money rises or falls according as the sum of the prices of commodities rises or falls with changes in their price. To produce this effect, it is by no means essential that the prices of all commodities shall simultaneously rise or fall. A rise in the prices of a certain number of important articles in one case, or a fall in the prices of such articles in the other case, will suffice to increase or to reduce the total prices of all the commodities in circulation, the prices that have to be realised; with the result that more or less money, as the case may be, will be put into circulation. No matter whether the change in the prices of the commodities mirrors real changes in value, or is simply due to fluctuations in market prices; the effect upon the quantity of the medium of circulation is the same.

Let us suppose that simultaneously, but independently of one another, and therefore in spatial separation one from another, certain sales or partial metamorphoses are effected; for instance, the sale of 1 quarter of wheat, that of 20 yards of linen, that of 1 bible, and that of 4 gallons of brandy.

If the price of each of these articles is £2, so that the total of their prices is £8, then a quantity of money amounting to £8 must be put in circulation. But if, on the other hand, these same commodities form links in the chain of a series of metamorphoses such as we have already considered, such a series as 1 quarter of wheat—£2—20 yards of linen—£2—1 bible—£2—4 gallons of brandy—£2, then one sum of £2 will bring about the circulation of the various commodities in serial order, enabling them to realise their respective prices serially, but realising as a whole the sum of prices which amounts to £8; and the £2 will in the end come to rest in the pocket of the distiller. The sum of £2 thus makes four moves. The repeated changes of place on the part of the same coins represents the twofold change of form of the commodities, their movement through two opposite stages of circulation; and it represents the inter-lacing of the metamorphoses of different commodities.* These antithetical and complementary phases through which the process passes are necessarily successive, and cannot be simultaneous. Consequently, the speed of the currency of money is measured by the number of moves made by a given piece of money in a given time. Let us suppose that the process of the circulation of the four commodities mentioned takes a day. The sum of the prices to be realised in the day is £8, the number of moves of the two coins is four, and the quantity of money circulated is £2. Hence, for a given interval of time during the process of circulation, the quantity of money in use as the circulating medium is equal to the sum of the prices of the commodities divided by the number of moves made by coins of the same denomination. This law has general validity.

The process of circulation in a given country during a given time consists, on the one hand, of a number of isolated and simultaneous partial metamorphoses, of sales which are at the same time purchases, in which the same coins change places once only, or make only one move; on the other hand, it consists of a number of distinct series of metamorphoses, series consisting of a larger or smaller number of links, series which in part run side by side and in part are reciprocally

* "It is products which set money in motion and make it pass from hand to hand. . . . The speed of its motion can make good a deficiency in its quantity. In case of need, it passes from hand to hand without a moment's pause." *Le Travail*, op. cit., pp. 243-246.

intertwined; and in these series each coin makes a number of moves, the number being greater or less according to circumstances. But from the total number of moves of all the current coins of one denomination, we can calculate the average number of moves made by each coin, or the average speed of the currency of money. The quantity of money which enters into the process of circulation, at the beginning of the daily circulation, for instance, is of course determined by the sum of the prices of all the commodities which are simultaneously circulating side by side. But, when once set in motion, coins act, so to say, held responsible one for another. If one has a speedier currency, another slackens its movements, or may even drop out altogether from the sphere of circulation, inasmuch as this sphere can only absorb such a quantity of gold as, when multiplied by the average number of moves made by one single coin or element, is equal to the sum of prices to be realised. Hence, if the number of moves of the coins increases, the quantity of the circulating medium diminishes. If the number of moves declines, the quantity of the circulating medium increases. Since the quantity of money capable of functioning as circulating medium is given when the average velocity of currency is given, it therefore suffices to put a definite quantity of one pound notes into circulation in order to drive an equal number of sovereigns out of circulation—a device well known to all bankers.

Just as the currency of money, generally considered, mirrors the process of the circulation of commodities, or the antithetical metamorphoses through which they pass, so the speed of the currency mirrors the speed with which commodities change their form, the continual interlacing of one series of metamorphoses with another, the hurried social interchange of matter, the speedy disappearance of commodities from the sphere of circulation, and their no less speedy replacement by new commodities. In a quickening of the currency of money, therefore, we see mirrored the flowing unity of the antithetical and complementary phases, the transformation of use-value into value and the retransformation of value into use-value—we see mirrored the two processes of sale and purchase. On the other hand, in a slackening of the currency of money, we see mirrored the disintegration of these processes, their movement towards reciprocal independence, a stagnation in the

CIRCULATION OF COMMODITIES for changes of form and therefore in the social interchange of commodities. Of course, we cannot ascertain, merely from a study of circulation, whence this stagnation arises. From a study of circulation we simply learn that stagnation exists. But the general public, seeing that, as the currency of money slackens, money appears and disappears less frequently at all the nodal points in the course of circulation, is naturally inclined to think that the retardation is due to a quantitative deficiency in the circulating medium.*

The total quantity of money functioning as the circulating medium during a given period is, therefore, determined, on the one hand, by the sum of the prices of the commodities in circulation, and, on the other hand, by the speed with which the antithetical phases of the process of circulation succeed one another. On this speed it depends what fraction of the total of prices can, on the average, be realised by

* "Money being . . . the common measure of buying and selling, every body who hath anything to sell, and cannot procure chapmen for it, is presently apt to think, that want of money is the kingdom, or country, is the cause why his goods do not go off: and so, want of money is the common cry; which is a great mistake. . . . What do these people want, who cry out for money? . . . The farmer complains: . . . he thinks that were more money in the country, he should have a price for his goods. Then it seems money is not his want, but a price for his corn and cattle, which he would sell, but cannot. . . . Why cannot he get a price? . . . (1) Either there is too much corn and cattle in the country, so that most who come to market have need of selling, as he hath, and few of buying; or (2) there wants the usual vent abroad by transportation . . .; or (3) the consumption falls, as when men, by reason of poverty, do not spend so much in their houses as formerly they did: whence it is not the increase of specie money, which would at all advance the farmer's goods, but the removal of any of these three causes, which do truly keep down the market. . . . The merchant and shop-keeper want money in the same manner, that is, they want a vent for the goods they deal in, by reason that the markets fall. . . ." [A nation] "never thrives better, than when riches are torn from hand to hand." Sir Dudley North, *Discourses upon Trade*, London, 1691, pp. 11-12, *passim*.—All that Harbenschwand's soap-bubble ideas amount to is this, that the antagonisms which spring from the very nature of the commodity, and therefore make their appearance in the circulation of commodities, can be removed by an increase in the quantity of the circulating medium. But if, on the one hand, it be a popular delusion to regard stagnation in production and circulation as due to insufficiency of the circulating medium, it by no means follows, on the other hand, that an actual scarcity of the medium (due, perhaps, to bragging legislative attempts to regulate the currency) may not give rise to such stagnation.

each coin. But the sum of the prices of the commodities in circulation depends upon their quantity as well as on the prices of the various commodities. These three factors, the movement of prices, the quantity of commodities in circulation, and the velocity of the currency of money, may vary in different directions and according to different ratios. Hence the sum of the prices to be realised, and consequently the amount of the circulating medium (which depends upon that sum), will be subject to numerous variations according to the combined influences of these varying factors. Here I shall only consider such variations as have been most important in the history of prices.

When prices remain constant, the quantity of the circulating medium may increase because the quantity of commodities in circulation increases, or because the velocity of the currency of money diminishes; or because both these factors are simultaneously at work. Conversely, the quantity of the circulating medium may decline because the quantity of commodities in circulation is reduced, or because the velocity of their circulation increases.

When there is a general rise in the prices of commodities, the quantity of the circulating medium may remain unchanged if the quantity of commodities in circulation decreases in the same proportion as their price increases, or if the velocity of currency increases as fast as prices rise, the quantity of commodities in circulation remaining constant. The quantity of the circulating medium may decrease because the quantity of commodities falls more rapidly than prices rise; or because the velocity of currency increases more rapidly than prices rise.

When there is a general fall in the prices of commodities, the quantity of the circulating medium will remain unchanged when the quantity of commodities increases proportionally to the fall in their prices, or when the velocity of currency decreases proportionally with the prices. On the other hand, the quantity of the circulating medium will increase if the quantity of commodities increases more quickly, or if the rapidity of circulation decreases more quickly, than prices fall.

The variations of the different factors may balance one another, so that, despite their persistent instability, the sum of the prices to be realised, and therefore the amount of the circulating medium, remain constant. For this reason

we find, especially if we take long periods into consideration, that the quantity of money circulating in any country differs much less than we might expect from a constant average level—apart, of course, from violent perturbations, such as periodically occur owing to industrial and commercial crises, or, less frequently, owing to a change in the value of money.

The law that the quantity of the circulating medium is determined by the sum of the prices of the commodities in circulation and by the average velocity of the currency of money,¹ can be expressed in another way by saying that, the sum of the values of the commodities and the average velocity of their metamorphoses being given, the quantity of current coin, or of the material of money, depends upon the value of money. The illusion that, conversely, the prices of commodities are determined by the quantity of the

¹ "There is a certain measure and proportion of money requisite to drive the trade of a nation, more or less than which would prejudice the same. Just as there is a certain proportion of farthings necessary in small retail trade, to change silver money, and to even such reckonings as cannot be adjusted with the smallest silver pieces. . . . Now, as the proportion of the number of farthings requisite in commerce is to be taken from the number of people, the frequency of their exchanges, as also, and principally, from the value of the smallest silver pieces of money; so in like manner, the proportion of money [gold and silver specie] requisite to our trade, is to be likewise taken from the frequency of commutations, and from the bigness of payments." William Petty, *A Treatise on Taxes and Contributions*, London, 1662, p. 17.—Hume's theory was defended against the attacks of J. Stewart and others by A. Young, in his *Political Arithmetic*, London, 1774. This work contains a special chapter, entitled, "Prices depend on Quantity of Money". See pp. 222 et seq.—In my *Zur Kritik der politischen Ökonomie*, I write (p. 252): "Adam Smith tacitly ignores the question as to the quantity of money in circulation, and quite wrongly treats money as nothing more than a commodity." This remark applies only to Smith's formal treatment of the topic of money. Occasionally (as, for instance, when he is criticizing earlier systems of political economy), his remarks are perfectly sound. "The quantity of coin in every country is regulated by the value of the commodities which are to be circulated by it. . . . The value of the goods annually bought and sold in any country requires a certain quantity of money to circulate and distribute them to their proper consumers, and can give employment to no more. The channel of circulation necessarily draws to itself a vein sufficient to fill it, and never admits any more." *Wealth of Nations*, book IV, chap. 1.—In like manner, in the formal opening of his work, he delivers himself of an apothecism upon the division of labour. Subsequently, in the last book, where he treats of the sources of public revenue, he occasionally reproduces the denunciations of the division of labour that were uttered by his teacher, A. Ferguson.

circulating medium, and that this quantity is itself determined by the quantity of the material of money existing in a country,¹ was based by those who first entertained it, upon the absurd hypothesis that commodities enter into the process of circulation without price, and that money enters the same process without value; and that, as soon as they have entered into circulation, an aliquot part of the medley of commodities is exchanged for an aliquot part of the heap of the precious metals.²

¹ "The prices of things will certainly rise in every nation, as the gold and silver increase amongst the people; and, consequently, where the gold and silver decrease in any nation, the prices of all things must fall proportionably to such decrease of money." Jacob Vanderlinde, *Money answers all Things*, London, 1774, p. 5.—A close comparison of Vanderlinde's work with Hume's *Essays*, leaves no doubt whatever in my mind that Hume had read and made use of Vanderlinde's work, which is a notable one.—The opinion that the quantity of the circulating medium determines prices is expressed also by Barbon, and by a good many much earlier writers.—Vanderlinde also says (*op. cit.*, p. 44): "No inconvenience can arise by an uncontrolled trade, but very great advantage! . . . since, if the cash of the nation be decreased by it, which prohibitions are designed to prevent, those nations that get the cash will certainly find everything advance in price as the cash increases amongst them. And . . . our manufactures and everything else, will soon become so moderate as to turn the balance of trade in our favour and thereby fetch the money back again."

² It is a self-evident proposition that the price of every kind of commodity forms one of the constituents of the sum of the prices of all the commodities in circulation. But in what way use-values, which are incommensurable one with another, are to be exchanged in mass for the total quantity of gold or silver in a country, is utterly incomprehensible. If we choose to fancy that the world of commodities consists of one huge aggregate commodity, of which the individual commodities form nothing more than aliquot parts, then we can cipher out the following ludicrous result: aggregate commodity = x cwt. of gold, commodity A = an aliquot part of the aggregate commodity = the same aliquot part of x cwt. of gold. Montesquieu stated this quite seriously: "If we compare the total quantity of gold and silver in the world with the total quantity of merchandise there, it is certain that each particular commodity or article of merchandise can be compared with a certain portion of the other. Let us suppose that there is but one commodity or article of merchandise in the world, or that there is only one offered for sale, and that it can be divided up like money; then this part of the merchandise will correspond to a part of the quantity of money: the half of the total of one will correspond to half of the total of the other, and so on. . . . The fixing of the price of things always depends fundamentally upon the ratio between the total of the things and the total of the symbols." *Op. cit.*, vol. III, pp. 12-13.—Concerning the further elaboration of this theory by Ricardo, by

C. Coins and Symbols of Value

Money assumes the form of coins because of its function as circulating medium. The weight of gold represented in imagination by the prices, or money names, of commodities must confront these commodities, in the process of circulation, as coins or gold pieces of an equivalent denomination. Coinage, like the establishment of a standard of prices, is a State affair. The various national uniforms worn at home by gold and silver as coins, and doffed again in the world market, serve to emphasise the severance between the internal or national spheres of circulation of commodities, and their general sphere of circulation in the world market.

Thus gold coins and gold ingots differ only in outward aspect, and the gold itself is at any time transformable from one shape into the other.¹ When a coin leaves the

his disciple James MILL, by Lord Overstone, and others, cf. *See Kritik der politischen Ökonomie*, pp. 140-148, and pp. 150 et seq. John Stuart MILL, with the aid of his own edictic system of logic, finds it possible, in this matter, to accept the opinion of his father James MILL, and at the same time to hold the opposite opinion. When we compare the text of his compendium, *Principles of Political Economy*, with the preface to the first edition of that work, where he announces himself as the Adam Smith of the present day, we do not know whether we are most to admire the salacity of the writer or that of the general public, which honestly believed him to be the Adam Smith he announced himself to be—although he bears about as much resemblance to Adam Smith as General Sir W. Fenwick Williams of Ears bears to the Duke of Wellington. John Stuart MILL's original researches in the domain of political economy (researches which are neither extensive nor profound), are summarised in his little work *Some Unsettled Questions of Political Economy*, published in 1844.—Locke asserts point-blank the connexion between the valuelessness of gold and silver and the determination of their value by their quantity: "Mankind having consented to put an imaginary value upon gold and silver, . . . the intrinsic value, regarded in these metals, . . . is nothing but the quantity." *Some Considerations on the Consequences of the Lowering of Interest*—Works, vol. II, London, 1777, p. 15.

¹ Such matters as seigniorage on minting are, of course, outside the scope of this work. Still, since the romanticist sycophant Adam MILLER admires the "magnanimous liberality" with which the "English government coins money gratuitously", I take this opportunity of quoting the opinion expressed by Sir Dudley NORTH: "Silver and gold, like other commodities, have their ebbs and flows. Upon the arrival of quantities from Spain, . . . it is carried into the Tower and coined. Not long after there will come a demand for bullion to be exported again. If there is none, but all happens to be in coin, what then? Melt it down again; there's no loss in it, for the coining costs the owner nothing. Thus the nation has been abused

mint, it sets out on the road to the melting-pot. During their currency, gold coins get worn, some more, others less. The name of gold and the substance of gold, the nominal content and the real content, begin to part company. Gold coins bearing the same name come to have different values, because they have different weights. Gold as medium of circulation differentiates from gold as standard of prices, and thus ceases to be an actual equivalent for the commodities whose prices it realises. The history of coinage during the Middle Ages and during the modern era on into the eighteenth century, is the history of these confusions. The natural tendency of the process of circulation to transform the essentiality of gold in the coin into the semblance of gold, to transform the coin into a mere symbol of its official content in metal, secures recognition in the latest legislation concerning the degree of wear which will suffice to demonetise a gold piece, to make it unfit for legal tender. The fact that, as the outcome of the currency of money, a severance ensues between the real content and the nominal content of a coin, between its actual metallic existence and its functional existence, discloses to us a latent possibility that the function of metallic money in coinage may be taken over by tokens or symbols of some other material. The technical difficulties in the way of coining extremely minute quantities of gold or silver, and the circumstance that in early days a less precious metal is used as a measure of value instead of a more precious one (copper instead of silver, silver instead of gold) and that the less precious metal circulates as money until dethroned by the more precious—explain the historical roles of silver and copper token coins as substitutes for gold coins. Silver and copper tokens take the place of gold in those regions of commodity circulation in which coins circulate most rapidly, and therefore become most rapidly worn—in the regions where buying and selling are incessantly renewed upon the pettiest scale. In order to prevent these satellites from usurping the place of gold, the amount of them which is to be accounted legal tender, the extent to which their acceptance in place of gold can be used made to pay for the twisting of straw for asses to eat. If the merchant were made to pay the price of the coinage he would not have sent his silver to the Tower without consideration; and coined money would always keep a value above uncoined silver." *Op. cit.*, p. 18.—North was one of the most noted merchants in the reign of Charles II.

enforced, is prescribed by enactment. Of course the tracks along which the different kinds of coin move are intercurrent to a greater or less extent. Tokens keep company with gold for the payment of fractions of the smallest gold coin; and gold is constantly passing into retail circulation, while it is just as constantly being ejected from that circulation by being changed into token coins.¹

The metallic content of silver and copper token coins is arbitrarily prescribed by law. In currency, they wear away even more rapidly than gold coins. Their function as coins, therefore, is, in practice, independent of their weight, this meaning that it is independent of their value. The coin entity of the money has become completely severed from its value as metal. Comparatively worthless things, such as paper notes, can therefore replace these token coins, and can function as money. In metal tokens, this purely symbolical character is still to some extent masked; but in paper money, the symbolism is obvious. We see that it is only the first step that is difficult.

I am alluding here exclusively to inconvertible paper money issued by the State, and having a compulsory circulation. This grows directly out of the metallic currency. Money based upon credit, on the other hand, implies conditions which, from our present standpoint of the simple circulation of commodities, are as yet quite unknown to us. In passing, however, I may remark that just as paper money properly so called arises out of the function of money as circulating medium, so money based upon credit has its natural roots in the function of money as the means of payment.²

* "If silver never exceed what is wanted for the smaller payments, it cannot be collected in sufficient quantities for the larger payments. . . . The use of gold in the main payments necessarily implies also its use in the retail trade: those who have gold coin, offering them for small purchases and receiving with the commodity purchased a balance of silver in return; by which means the surplus of silver that would otherwise encumber the retail dealer is drawn off and dispersed into general circulation. But if there is as much silver as will transact the small payments independent of gold, the retail trader must then receive silver for small purchases; and it must of necessity accumulate in his hands." David Buchanan, *Inquiry into the Transition and Commercial Policy of Great Britain*, Edinburgh, 1844, pp. 228-229.

* The mandarin Wao-mao-lo, the Chinese chancellor of the exchequer, took it into his head one day to lay before the Son of

Pieces of paper on which money names, such as £1, £5, etc., have been printed, are put into currency by the State. In so far as they really become current in place of the above-named sums of money, they mirror once more in their movement the laws of the currency of money. A law peculiar to the currency of paper money can arise only as an outcome of the proportion in which the paper money represents gold. The law is simply this, that the issue of paper money must not exceed in amount the gold (or silver) which would actually circulate if not replaced by symbols. Now, the amount of gold which the sphere of circulation can absorb oscillates continually above and below an average level. Still, the quantity of the circulating medium in a given country never sinks below a minimum which can be determined by experience. The fact that the constituents of this minimum are perpetually changing, that the gold coins of which it consists at one time are different from those of which it consists at another, does not, of course, in any way affect its amount, and its continuous movement within the sphere of circulation. It can, therefore, be replaced by paper symbols. But if all the channels of currency are filled to the brim with paper money, so that there is no further capacity in the sphere of circulation for the absorption of money, then, owing to the oscillations in the circulation of commodities, the channels of currency may be overflowed on the morrow. There will no longer be any standard. If the paper money is in excess, if there is more of it than represents the amount of gold coins of like denomination which could actually be current, it will

Heaven a proposal the hidden purport of which was to transform all the assignats, or currency notes of the empire, into convertible banknotes. In April 1844, the Assignats' Committee, reporting upon the scheme, gave the Minister a severe dressing down. (Whether he also received the traditional drubbing with bamboo is not recorded.) The report ends as follows: "The committee has carefully examined the proposal, finds that it is entirely in favour of the merchants, and that no advantage will result to the crown." *Abolition der Kaiserlichen Bamberger Grundbesitzes als Zahlung über China*, translated from the Russian by K. Abel and F. A. Mecklenburg, vol. I, Berlin, 1848, pp. 47 et seq.—In his evidence before the Committee of the House of Lords on the Bank Acts, a governor of the Bank of England says with regard to the abrasion of gold coins during currency: "Every year a fresh class of sovereigns becomes too light. The class which one year passes with full weight loses enough by wear and tear to draw the scales next year against it." *House of Lords Committee*, 1848, n. 429.

(apart from the danger of falling into general disrepute) represent only that quantity of gold which, in accordance with the laws of the circulation of commodities, is actually required, and is alone capable of being represented by paper. If the quantity of paper money issued is, for instance, double what it ought to be, then, in actual fact, one pound has become the money name of about $\frac{1}{2}$ of an ounce of gold instead of about $\frac{1}{2}$ of an ounce. The effect is the same as if an alteration had taken place in the function of gold as a standard of prices. The values previously expressed by the price £1 will now be expressed by the price £2.

Paper money is a token representing gold or money. The relation between it and the values of commodities is this, that the latter are ideally represented in the same quantities of gold as are symbolically represented in the paper. Only in so far as paper money represents gold (which, like all other commodities, has value), is it a symbol of value.¹

Finally we have to ask how it is that gold can be replaced by worthless symbols of itself. Well, we have seen that it is only thus replaceable in so far as it functions as coin, or as the circulating medium, and as nothing else. Its movement, therefore, represents nothing but the continuous interlacing of the antithetical processes of the commodity metamorphosis, $C-M-C$, in which the value form confronts the commodity for an instant, to disappear again promptly. The independent representation of the exchange-value of the commodity exists but for a fleeting moment, for it is promptly replaced by another commodity. That is why money can play its part in a purely symbolical manner in a process in which it is continually passing from hand to

¹ The following passage from Fullarton shows how closely are the ideas of even the best writers on currency as regards the various functions of money: "That, as far as concerns our domestic exchanges, all the monetary functions which are usually performed by gold and silver coins, may be performed as effectually by a circulation of inconvertible notes, having no value but that fictitious and conventional value they derive from the law, is a fact which admits, I conceive, of no denial. Value of this description may be made to answer all the purposes of intrinsic value, and supersede even the necessity of a standard, provided only the quantity of issues be kept under due limitation." *Regulation of Currency*, second edition, London, 1845, p. 21. We are to understand that, because the money commodity can be replaced in the sphere of circulation by mere tokens of value, therefore the money commodity is superfluous as the measure of values and the standard of prices!

hand. Its functional existence absorbs, so to say, its material existence. Being a transient and objective reflex of the prices of commodities, it functions only as a symbol of itself, and can therefore itself be replaced by symbols.¹ One thing, however, is essential. This token which functions as money, must have an objective social validity of its own; and the paper symbol acquires such a validity by its enforced currency. State compulsion of the kind can take effect only within that domestic sphere of circulation which is restricted by the frontiers of the community; but it is only within that sphere that money fully assumes its function as circulating medium, or coin. Within that sphere, therefore, it can acquire in the form of paper money a purely functional existence, distinct from its metallic substance.

3. MONEY.

The commodity that functions as the measure of value, and therefore (either in its own person or through a representative) functions as the circulating medium, is money: Gold, or silver, is therefore money. It functions as money, on the one hand, when it has to be present in its own golden, or silver, personality, being then, as the money commodity, neither ideal (as when it functions as the measure of value), nor capable of being represented by a symbol (as when it functions as circulating medium); on the other hand, when, by virtue of its function, and no matter whether that function be fulfilled by it in its own person or through a representative, it congeals into the mere form of value, as the only adequate form of existence of the exchange-value of all other commodities (in contrast with their existence as use-values).

A. Hoarding

The continuous circulation of two antithetical metaphorphoses of commodities, the never-ceasing alternation of sale

¹ From the fact that gold and silver, so far as they are coins, or serve exclusively as circulating medium, become mere tokens in themselves, Nicholas Barbon infers the right of governments "to raise money", that is, to give to the weight of silver that is called a shilling the same of a greater weight such as a crown; and so to pay creditors shillings instead of crowns. "Money does wear and grow lighter by often tolling over. . . . It is the denomination and currency of the money that men regard in bargaining and not the quantity of silver. . . . 'Tis the public authority upon the metal that makes it money." *Op. cit.*, pp. 29, 30, and 23.

and purchase, is reflected in the unceasing currency of money, in the function of money as the "perpetual motion" of circulation. But as soon as the series of metamorphoses is interrupted, as soon as a subsequent purchase fails to supplement sale, money becomes immobilised, or, as Boingvillebert says, is transformed from movable property into immovable, from current coin into generalized money.

However with the very earliest development of commodity circulation, there develops also a need, an urgent desire, for keeping a grip on the product of the first metamorphosis, the changed form of the commodity, its gold chrysalis.¹ When this desire is dominant, commodities are sold, not in order to buy other commodities, but in order to replace the commodity form by the money form. This change of form, originally designed to promote the circulation of commodities, has become an end in itself. The changed form of the commodity is no longer allowed to function as an absolutely alienable, as a merely transient money form. The money petrifies into a hoard, and the seller of commodities becomes a hoarder of money.

In the early stages of the circulation of commodities, it is only the overplus of use-values that is transformed into money. Gold and silver thus become the social expressions of superfluity, or of wealth. This artless form of hoarding is perpetuated among those peoples by whom a traditional method of production is carried on for the satisfaction of a fixed and limited circle of wants. We see this among Asiatics, and especially among the inhabitants of India. Vanderlint, who is under the illusion that the prices of commodities are determined by the amount of gold or silver in a country, asks himself why Indian commodities are so cheap. He answers that it is because Hindus bury money. Between 1602 and 1734, he points out, they buried silver to the value of £150,000,000, which had come from America by way of Europe.² Between 1856 and 1866, in ten years, England exported to India and China (most of the metal exported to China finds its way back to India) silver to the

¹ "Wealth in the form of money is nothing other than . . . wealth in the form of production metamorphosed into money." *Marcier de la Rivière, op. cit.*, p. 357.—"A value in production has only changed its form." *Ibid.*, p. 486.

² "It is by this practice they keep all their goods and manufactures at such low rates." *Vanderlint, op. cit.*, pp. 92-93.

value of £120,000,000, silver which had been received in exchange for Australian gold.

As the production of commodities undergoes further development, every producer of commodities must make sure that he has a sufficiency of what serves as the link between them, a sufficiency of the "social pledge."¹ His wants are incessantly renewed and incessantly dictate the purchase of others' commodities, whereas the production and sale of his own commodities need time and depend upon chance happenings. If he is to be able to buy without selling, he must previously have sold without buying. As a generalised proceeding, this operation seems self-contradictory. Nevertheless, at the source of production, the precious metals are directly exchanged for other commodities. Here, therefore, there is sale effected by the owner of a commodity without any purchase being effected by the owner of gold or silver.² Subsequent sales, by other producers, when not followed by purchases, serve merely to promote the distribution of the precious metals among all owners of commodities. In this way, at every point where commerce takes place, there arise hoards of gold and silver of varying extent. When it becomes possible to hold fast to a commodity as exchange-value, or to exchange-value as a commodity, the greed for money awakens. As the circulation of commodities extends, the power of money increases, of money which is an absolutely social form of wealth, ever ready for use. Columbus, in a letter from Jamaica penned in 1503, says: "Gold is a wonderful thing! Whoever owns it is lord of all he wants. With gold it is even possible to open for souls a way into paradise!" Since money does not disclose what has been transformed into it, everything, whether a commodity or not, is convertible into gold. Everything becomes saleable and purchasable. Circulation is the great social retort into which everything is thrown, and out of which everything is recovered as crystallised money. Not even the bones of the saints are able to withstand this alchemy; and still less able to withstand it are

¹ "Money is a pledge," John Bellers, *Essays about the Poor, Manufactures, Trade, Ploughing, and Jewellery*, London, 1689, p. 13.

² In the categorical sense of the term, when we speak of purchase we mean that goods are paid for in gold or silver which already exists as a changed form of commodities which has been acquired as the outcome of a sale.

more delicate things, sacrosanct things which are outside the commercial traffic of men.¹ Just as all the qualitative differences between commodities are effaced in money, so money on its side, a radical leveller, effaces all distinctions.² But money is itself a commodity, an external object, capable of becoming the private property of any individual. Thus social power becomes a private power in the hands of a private person. That was why the ancients denounced money as subversive of the economic and moral order of things.³ Modern society which, when still in its infancy, pulled Plato by the hair of his head out of the bowels of the earth,⁴ acclaims gold, its Holy Grail, as the glittering incarnation of its inmost vital principle.

¹ Henry III, most Christian king of France, robbed monasteries of their relics in order to turn these into money. We know what part the despoiling of the temple of Delphi by the Phocians played in Greek history. Among the ancients, the god of commodities had his dwelling in the temple. Temples were "sacred banks". The Phocians, preeminently a trading people, looked upon money as the transmuted form of all things. It was, therefore, quite in order that the virgins who, at the behest of the goddess of love, gave themselves to strangers, should offer up to the goddess the pieces of money they received.

² Gold! Yellow, glittering, precious gold! . . .

Thus much of this will make black, white; foul, fair;
Wrong, right; base, noble; old, young; coward, valiant.
. . . What this, you gods? Why, this
Will tug your priests and servants from your sides,
Fluck about men's pillows from below their heads.
This yellow slave
Will knit and break religions; bless the accurs'd;
Make the hoar leprosy odd's'd; please thieves,
And give them title, blame, and approbation,
With senators on the bench; this is it,
That makes the wappen'd widow wed again.

. . . Come damned earth,
Thou common whore of mankind. . .

Shakespeare, *Troas of Athens*, Act IV, sc. iii.

³ Of evils current upon earth,
The worst is money. Money 'tis that makes
Cities, and drives men forth from hearth and home;
Warpes and seduces native innocence,
And breeds a habit of dishonesty.

Sophocles, *Antigone*, ll. 295 et seq. (F. Starr's translation, Loeb Classical Library, Sophocles, vol. I., p. 335).

⁴ "The desire of avarice to draw Plato himself out of the bowels of the earth." Athenæus, *The Deipnosophists*, VI, 83.

As a use-value, a commodity satisfies a particular want, and forms a particular element of material wealth. But the value of a commodity is the measure of the attraction it exerts upon all the other elements of material wealth, and is therefore the measure of the social wealth of its owner. To a barbarian owner of commodities, and even to a western European peasant, value seems inseparable from the form of value; and an increase in a hoard of gold and silver is therefore regarded as an increase in value. It is true that the relative value of money varies, it may be owing to a change in its own value, and it may be owing to a change in the value of commodities. No matter for this, and whether the value of money be changed or not, 200 ounces of gold contain more value than 100, 300 more than 200, and so on. Moreover, whether the value of money be changed or not, the actual metallic form of this article is the general equivalent form of all commodities, is the direct social incarnation of all human labour. The impulse to hoard is, from its very nature, insatiable. Qualitatively or formally considered, money is limitless, is the general representative of material wealth, inasmuch as it is directly convertible into every commodity. None the less, every actual sum of money is quantitatively restricted, and can therefore be applied to the purchase of only a restricted amount of goods. This antithesis between the quantitative limitations and the qualitative boundlessness of money, continually spurs on the hoarder to the Sisyphus-like labour of accumulation. He is like a conqueror, for whom every new country he subdues is but a new frontier.

In order that gold may be kept in hand as money, and therefore as an element of a hoard, it must be prevented from circulating, from transforming itself into a means of enjoyment by being used to effect purchases. The miser, therefore, sacrifices his fleshly lusts to the fetish of gold. He takes the gospel of renunciation in dead earnest. On the other hand, he cannot withdraw from circulation in the form of money more than he has given to circulation in the form of commodities. The more he produces, the more he can sell. Diligence, thrift, and avarice, are therefore his cardinal virtues; to sell much and to buy little, are his whole science of political economy.²

² 'To increase as much as possible the number of sellers of all kinds of merchandises and to diminish as much as possible the

Side by side with this crude form of hoarding, we have a refined form, in the possession of gold and silver articles. The passion for this latter grows with the growing wealth of bourgeois society. "Let us be rich, or appear rich" (Diderot). In this way there is created, on the one hand, a more extended market for gold and silver independently of their monetary functions, and, on the other hand, a latent source for the supply of money, to which recourse can be had from time to time, and especially in periods of social storm and stress.

Hoarding serves various purposes in the economy of the circulation of the precious metals. Its first function arises out of the conditions under which the currency of gold or silver coins takes place. We have seen that, in accordance with the incessant oscillations in the circulation of commodities, in the matter of extent, prices, and velocity, there is a perpetual ebb and flow in the amount of money that is current. The currency, therefore, must be capable of contraction and expansion: at one moment, money must be attracted to become current coin; at another time, current coin must be repelled, to assume the form of stagnant money. If the mass of money actually current is to be unceasingly accordant with the absorptive powers of the circulation of commodities, the amount of gold or silver in a country must exceed the amount that is functioning as current coin. This condition is fulfilled because some of the money in a country takes the form of hoards. The hoards serve as reservoirs, with which the money in circulation is connected by channels of inflow and outflow, so that the stream of current coin never overflows its banks.¹

number of buyers; these are the hinges on which all the operations of political economy turn." Verri, *op. cit.*, p. 32.

"There is required for carrying on the trade of the nation, a determinate sum of specific money, which varies, and is sometimes more, sometimes less, as the circumstances we are in require. . . . This ebbing and flowing of money supplies and accommodates itself, without any aid of politicians. . . . The buckets work alternately: when money is scarce, bullion is coined; when bullion is scarce, money is melted." Sir Dudley North, *op. cit.*, postscript, p. 3.—John Stuart Mill, who for a long time was an official of the East India Company, confesses the statement that in India silver ornaments continue to function as hoards. He says that they are brought out and coined when there is a high rate of interest, and go back when the rate of interest falls. See his evidence in *Reports on Bank Acts*, 1833, n. 1084.—According to a parliamentary document of

B. Means of Payment

In the direct form of the circulation of commodities hitherto considered, a given magnitude of value was always present in a twofold shape, as commodity at one pole, and as money at the opposite pole. The owners of commodities, therefore, only came into contact with one another as the representatives of reciprocally preexisting equivalents. But as the circulation of commodities develops, there arise conditions thanks to which the alienation of commodities and the realisation of their prices become separated by an interval of time. Enough to point out the simplest of these conditions. One kind of commodity requires a long time for its production, whereas another kind can be produced much more quickly. The production of certain commodities is dependent upon seasonal conditions. One commodity can be marketed in the place where it comes into existence, whereas another has to find its way to a distant market. For these reasons, one commodity owner can present himself as a seller before another commodity owner is ready to play the part of buyer. Where like transactions are continually being repeated between the same persons, the conditions of sale are regulated in accordance with the conditions of production. On the other hand, the use of certain kinds of commodity, such as houses, is sold for a specific period of time, and the buyer has not really received all the value of the commodity until the term of sale has expired. Such a buyer, therefore, buys it before he pays for it. The vendor sells an extant commodity; the buyer buys it as the mere representative of money, or as the representative of future money. The vendor becomes a creditor, and the buyer becomes a debtor. Since the metamorphosis of commodities, or the development of their value form, appears here in a new aspect, money, too, acquires a new function. It becomes a means of payment.¹

1884, on the gold and silver import and export of India, in 1883 the import of gold and silver exceeded the export by £12,387,784. During the eight years down to 1884, the excess of imports of the precious metals over exports amounted to £109,621,207. In the present century, far more than £100,000,000 has been coined in India.

¹ Luther distinguishes between money as means of purchase and money as means of payment, for he writes: "Thou mistak'st a twin for me out of the wallet, because here I cannot pay and there I cannot buy." See *Am die Jfarrkern, wider den Wucher zu gerichtem*, Wittenberg, 1540.

The quality of being creditor or debtor is here the outcome of the simple circulation of commodities. But when the circulation of commodities changes its form, this new stamp is impressed upon seller and buyer. At first, therefore, the roles are transiently assumed, and are alternately played by the same agents of circulation, just as the roles of seller and buyer are alternately played and transiently assumed. But the antithesis between creditor and debtor is a far less kindly one, and is much more susceptible of fixation.¹

We must remember that these same roles of debtor and creditor can be assumed independently of the circulation of commodities. The class struggle of the ancient world took the form mainly of a struggle between creditors and debtors; and in Rome it ended in the ruin of the plebeian debtors, who became slaves. In the Middle Ages, the same struggle ended with the ruin of the feudal debtors, who lost their political power when they lost the economic basis on which it had been upbuilt. Nevertheless, the money form (and the relation between creditor and debtor has the form of a money relation) here mirrors only the antagonism between economic conditions of existence that lie at a deeper level.

Let us return to the circulation of commodities. The appearance of the two equivalents, commodities and money, at the two poles of the process of sale, is no longer simultaneous. Money now functions, in the first place, as the measure of value in the determining of the price of the commodity that is sold. The price fixed by contract, measures the obligation of the buyer, that is to say the amount of money which he has to pay at a fixed date. Secondly, the money serves as an ideal, as a non-concrete, means of purchase. Though it exists only in the form of the buyer's promise to pay, it brings about a movement of the commodity from the hands of the seller to the hands of the buyer. The means of payment do not actually enter into circulation until the stipulated term has expired; not until

¹ Regarding the relations between debtor and creditor among English traders at the beginning of the eighteenth century, we read: "Such a spirit of credulity reigns here in England among the men of trade, that it is not to be met with in any other society of men, not in any other kingdom of the world." *An Essay on Credit and the Bankrupt Act*, London, 1707, p. 2.

then does money pass from the hands of the buyer into the hands of the seller. The circulating medium has been transformed into a hoard, for the process of circulation has been arrested at the end of the first phase, and the money which represents the commodity in a changed form has been withdrawn from circulation. The means of payment do eventually enter into circulation, but only after the commodity has already dropped out of circulation. The money is no longer the means that brings about the process. It only brings the process to a close, by presenting itself as the absolute form of existence of exchange-value, or as the generalised commodity. The seller changes a commodity into money, that he may satisfy a want by means of money; the miser changes a commodity into money, that he may hoard the commodity in its money form; the debtor changes a commodity into money, that he may pay for a previous purchase. If the debtor does not pay, there will be a distraint on his goods. Money, the value form of the commodity, has therefore now become the end and aim of a sale, this being the expression of a social necessity arising out of the process of circulation itself.

The buyer retransforms money into commodities before he has transformed commodities into money; in other words, he effects the second metamorphosis of commodities before he has effected the first. The seller's commodity circulates, and realises its price, but it only does this as a legal claim upon money. It is converted into a use-value before it has converted itself into money. The completion of the first metamorphosis is postponed.¹

The obligations falling due within a given period represent the sum of the prices of the commodities the sale of which gave rise to these obligations. The amount of money

¹ The following quotation from the book I wrote in 1899 will show why, in the text, I pay no heed to an opposite form: "On the other hand, in the process M—C, the money can be alienated as a real means of purchase, and thus the price of the commodity can be realised before the use-value of the money is realised, and the commodity actually delivered. This habitually occurs in the familiar form of prepayment. We also see it in the method of purchase used by the English government for buying opium from Indian ryots. . . . In these cases, however, the money always works in the usual way as a means of purchase. . . . Of course, capital is also advanced in the form of money. . . . This point of view, however, does not come within the scope of simple circulation." *Zur Kritik der politischen Ökonomie*, pp. 329–330.

necessary for the realization of the total of these prices is primarily dependent upon the rapidity of the currency of the means of payment. This is itself determined by two conditions: the chain of relations between creditors and debtors, so that A, when he receives money from his debtor B, promptly hands it over to his creditor C, and so on; and the length of the intervals between the various settling days. This continuous chain of payments, or retarded first metamorphoses, is essentially different from that interlacing of the series of metamorphoses which we considered in an earlier phase of our investigation. In the currency of the circulating medium, the connexion between sellers and buyers is not merely indicated. It is actually originated by, and exists in, the currency of money. On the other hand, the movement of the means of payment expresses a social relation that already exists before the movement begins.

The degree to which numerous sales are effected simultaneously, so that they proceed side by side, restricts the degree to which a comparative deficiency in the amount of coins can be made good by increasing the rapidity of their currency. On the other hand, this simultaneity of sales gives a new impetus to the economizing of the means of payment. In proportion as numerous payments are concentrated in one spot, there naturally arise special institutions and methods for balancing them one against the other. Of this nature, for instance, were the clearings of account which, under the name of "*virements*," were effected in Lyons during the Middle Ages. A's debt to B, B's debt to C, C's debt to A, and so on, need merely be confronted one with another in order to cancel one another to a certain extent, as do positive and negative magnitudes. Thus there will remain only one outstanding balance of debt to be settled. The more extensive the concentration of the payments, the smaller will be the balance relatively to their total, and the smaller, therefore, will be the mass of the means of payment in circulation.

The function of money as means of payment involves a direct contradiction. In so far as the payments balance one another, money functions in a purely ideal way as money of account, as a measure of value. In so far as actual payments have to be made, it does not serve as circulating medium (as nothing more than a transient agent in the interchange

of processes), but as the individual incarnation of social labour, as the independent entity of exchange-value, as the absolute commodity. The contradiction comes to a head in those phases of industrial and commercial crises which are known as monetary crises.¹ Such a crisis can only occur when the lengthening chain of payments and an artificial system of balancing them one against the other have been fully developed. Whenever there is a general disturbance of this mechanism, and no matter what its cause may be, money suddenly quits the ideal form of money of account and materialises as hard cash. Profane commodities can no longer replace it. The use-value of commodities becomes valueless, and their value is routed by their own form of value. A moment earlier, the bourgeois, drunk with the arrogance of prosperity, was ready to declare that money was a pure illusion, and to say that commodities were the only money. Now, when the crisis comes, the universal cry is that money alone is a commodity. As pants the hart for cooling streams, so does his spirit pant for money, the only wealth.² During the crisis, the contract between the commodity and money, its form of value, becomes accentuated into an absolute contradiction. It does not matter, now, what the phenomenal form of money may be. The money famine is just as urgent whether payment has to be made in gold or in credit money, such as banknotes.³

* The "monetary crisis" referred to is the last as a particular phase of every general industrial and commercial crisis, must be clearly distinguished from a particular kind of crisis (also known as a "monetary crisis") which may occur independently, with an indirect reaction upon industry and commerce. The very pivot of such crises is money capital, and for that reason their immediate sphere of activity will be found in banks, the stock exchange, and finance generally.

* "The sudden reversion from a system of credit to a system of hard cash, heaps theoretical terror on the top of practical panic; and the dealers by whose agency circulation is affected tremble before the impenetrable mystery in which their own relations are involved." Karl Marx, *op. cit.*, p. 125.—"The poor stand still because the rich have no money to employ them, though they have the same land and hands to provide victuals and clothes as ever they had; which is the true riches of a nation, and not the money." John Bellers, *Proposals for Raising a College of Industry*, London, 1696, p. 3.

† The following quotation shows how such times are turned to account by those who are styled the friends of commerce: "On one occasion [1836] an old grasping banker in his private room raised the lid of the desk he set over and displayed to a friend rolls of

If we consider the sum total of the money current during a given period, we shall find that, assuming the velocity of the currency of the circulating medium and the means of payment to be fixed, it is equal to the sum of the commodity prices to be realised plus the sum of payments falling due, minus the payments that balance one another, and minus the number of circuits in which the same coin serves by turns as means of circulation and as means of payment. For instance, a farmer sells grain for £2, which therefore serve as means of circulation. On settling day, he uses these £2 to pay for linen which he previously had from the weaver. Now the same £2 are functioning as means of payment. The weaver, thereupon, buys a bible with the £2, paying in cash; so that now £2 are again functioning as a means of circulation—and so on, and so on. Hence, even when prices, velocity of currency, and thrift in payments are assumed, the quantity of money current and the mass of commodities circulating during a given period, such as a day, no longer correspond. Money representing commodities long since withdrawn from circulation continues to circulate. Commodities circulate whose equivalent in money will not appear on the scene till some future day. Moreover, the debts contracted each day and the payments falling due on the same day are incommensurable quantities.* Credit

banknotes, saying with intemperate gloze these were £500,000 of them, they were held to make money tight and would all be let out after 3 o'clock on the same day." *The Theory of Exchanges, the Bank Charter Act of 1844*, London, 1864, p. 82.—From the "Observer" of April 24, 1844: "Some very curious rumours are current of the means which have been resorted to in order to create a scarcity of banknotes. . . . Questionable as it would seem, to suppose that any trick of the kind would be adopted, the report has been so universal that it really deserves mention."

* "The amount of purchases or contracts entered upon during the course of any given day, will not affect the quantity of money about on that particular day, but, in the vast majority of cases, will resolve themselves into multitudes of drafts upon the quantity of money which may be about at subsequent dates more or less distant. . . . The bills granted or credits opened, to-day, need have no resemblance whatever, either in quantity, amount, or duration, to those granted or entered upon to-morrow or next day; nay, many of to-day's bills, and credits, when due, fall in with a mass of liabilities whose origin traverses a range of antecedent dates altogether indefinite, bills at 10, 5, 3 months, or 1, often aggregating together to swell the common liabilities of one particular day." *The Currency Question reviewed, a Letter to the Scottish People, by a Banker in England*, Edinburgh, 1843, pp. 29-30, *passim*.

money arises directly out of the function of money as means of payment, inasmuch as promissory notes representing amounts owed for purchased commodities circulate for the purpose of passing on such obligations from one to another. On the other hand, the function of money as means of payment undergoes extension as the credit system is extended. As means of payment, credit money assumes various forms peculiar to itself, forms under which it makes itself at home in the sphere of great commercial transactions. Gold and silver coin, on the other hand, is reserved more and more for the sphere of retail trade.*

When commodity production has developed to a sufficient extent, the function of money as means of payment spreads beyond the sphere of commodity circulation. Money becomes the general basis of contracts.[†] Rent, taxes, etc., instead of being paid in kind, are now paid in money. To how great an

* To show how small are the amounts of hard cash requisite for the carrying on of large-scale commercial operations, I quote a statement issued by one of the great London mercantile houses (Messrs. Dillon, & Co.) as to its yearly receipts and payments. Its transactions during the year 1856, extending to many millions of pounds, are here reduced to the scale of one million. The table will be found in the *Report from the Select Committee on the Bank Act*, July, 1858, p. LXXI.

Receipts.		Payments.	
Bankers' and merchants' bills payable after date	£ 353,396	Bills payable after date	£ 302,674
Cheques on bankers, etc., payable on demand	357,715	Cheques on London bankers ..	263,672
Country notes ..	9,587	Bank of England notes	21,743
Bank of England notes	68,354	Gold	9,437
Gold	18,666	Silver and copper	1,484
Silver and Copper	1,484		
Post office orders	213		
Total ..	£1,000,000	Total ..	£1,000,000

* "The course of trade being thus turned, from exchanging of goods for goods, or delivering and taking, to selling and paying, all the bargains . . . are now stated upon the foot of a price in money." *An Essay upon Public Credit*, third edition, London, 1770, p. 8.

extent the possibility of this transformation is dependent upon the general nature of the conditions of production, is shown, to take one example, by the fact that the Roman Empire made two attempts to levy all taxes in money, and failed on each occasion. The desperate poverty of the French peasantry under Louis XIV, a matter to which Boisguillebert, Marshal Vauban, and others, referred in such eloquent terms, was due, not only to the gross amount of the taxes, but to the levying of taxes in money instead of in kind.¹ In Asia, on the other hand, where rents are payable in kind, and where payments in kind form the bulk of the taxes, the phenomena are dependent upon relations of production which reproduce themselves with the regularity of natural phenomena. Conversely, this method of payment reacts by maintaining the old method of production. Payment in kind is one of the secrets of the preservation of the Ottoman Empire. If the foreign trade which the western powers have forced upon Japan should lead to the payment of land-rent there in money instead of in kind, it will be all up with the model agricultural system of that country. The restricted economic conditions under which it has been carried on will be swept away.

In every country, particular days in the year become established by custom as settling days. Apart from the influence of other alternations of reproduction, the choice of these days is partly determined by seasonal variations, which are the natural conditions of production. Once established, settling days serve to regulate, in addition, payments which are not directly connected with the circulation of commodities, such as taxes, rent, etc. The amount of money needed to make the payments that fall due upon such dates all over the country gives rise to periodical, though purely superficial, perturbations in the economy of the means of payment.² From the law of the rapidity of the

currency of the means of payment, it follows that, for all periodical payments, whatever their nature, the amount of the means of payment required is in inverse ratio to the length of the period of payment.*

The development of money into a means of payment makes it necessary to accumulate money to provide for what will be needed on settling days. Whilst hoarding, as a distinct mode of acquiring riches, disappears with the advance of bourgeois society, the formation of reserves to provide means of payment extends proportionally with the growth of that society.

C. Universal Money

When money leaves the home sphere of circulation it duffs the local venture of standard of prices, of coin, of tokens, and of symbols of value, and returns to its original form of bullion. In the world market, commodities display their values in terms recognised as having universal validity. Hence their independent value form confronts them here,

banks to borrow, but could not get them, and many of the transactions were adjusted by slips of paper only; yet by 3 o'clock the whole of the notes were returned into the banks from which they had issued! It was a mere transfer from hand to hand."—Although the effective average circulation of banknotes in Scotland amounts to less than £3,000,000, nevertheless on certain pay-days in the course of the year every single note in the possession of the bankers, amounting in all to £5,000,000, is called into activity. On these occasions, the notes have a single and specific function to perform, and, as soon as it has been fulfilled, they flow back into the banks from which they were issued. See John Fullerton, *Regulation of Currency*, London, 1844, p. 43, note.—I should explain that in Scotland, at the time when Fullerton wrote, notes and not cheques were issued against deposits.

* To the question, "If there were occasion to value 40 millions per annum, whether the same 4 millions [gold] . . . would suffice for such revolutions and circulation thereof as trade requires," Petty replies in his usual matterly way: "I answer, Yes; for, the expense being 40 millions, if the revolutions were in such short circles, viz. weekly, as happens among poor artisans and labourers, who receive and pay every Saturday, then $\frac{1}{2}$ parts of one million of money would answer these ends; but if the circles be quarterly, according to our custom of paying rent, and gathering taxes, then 10 millions were requisite. Wherefore, supposing payments in general to be of a mixed circle between 1 week and 13, then add 10 millions to $\frac{1}{2}$, the half of which will be $\frac{1}{4}$, so as if we have $\frac{1}{4}$ millions we have enough." *Political Anatomy of Ireland*, London, 1692, Appendix, *Verbum Sapienti*, pp. 13-14.

likewise, under the shape of universal money. It is only in the world market that money acquires to the fullest extent the character of the commodity whose bodily form is also the direct social incarnation of human labour in the abstract. Its mode of existence has become adequate to its concept.

Within the sphere of home circulation, there can be but one commodity which can serve as the measure of value, and can therefore function as money. But in the world market there are two measures of value, gold and silver.¹

¹ Hence the absurdity of legislation directing the national banks to form reserves of that precious metal alone which functions as money at home. The "pleasant difficulties" thus created for itself by the Bank of England are well known. As to the most notable epochs in the history of the changes in the relative values of gold and silver, see Karl Marx, *op. cit.*, pp. 138 et seq.—In the Bank Act of 1844, Sir Robert Peel endeavoured to tide over the difficulty by allowing the Bank of England to issue notes against silver bullion, on condition that the reserve of silver should never exceed more than one-fourth of the reserve of gold. The value of silver was to be taken at its price in gold in the London market.—[Note added by Friedrich Engels to the fourth edition: We have entered a new epoch during which great fluctuations are occurring in the relative values of gold and silver. About 25 years ago, the value of silver was to that of gold as 15½:1; now, the ratio is about 12:1; and the relative value of silver is still falling. The change has been mainly brought about by a revolution in the method of producing both these metals. In former days, gold was almost exclusively obtained by washing it out of alluvial deposits, containing gold derived from the disintegration of auriferous rocks. This method no longer suffices, and has been pushed into the background by another method, which was familiar to the ancients (Diodorus, III, 12-14), though never more than a second string to their bow. I refer to the direct working of auriferous quartz. On the other hand, very rich new silver mines have been discovered, not only in the mountains of the American Union, but also in Mexico. Thus deposits have been made accessible by railroads, modern machinery has been installed, supplies of fuel have been made available, and thereby the extraction of silver upon a very large scale and at a much lower cost has been facilitated. There are great differences between the ways in which these respective metals exist in the lodes. Gold generally exists in the quartz in a pure state, but there is very little of it in considerable quantities of quartz. Large amounts of rock have, therefore, to be crushed, and the gold washed out, or extracted by means of quicksilver. Often enough, one million grammes do not contain more than 1 to 3 grammes of gold, and rarely more than from 50 to 60 grammes. Silver, on the other hand, is seldom found in the pure state; but it occurs in ores that are easily separated from the dross, and usually contain from 40 to 90% of silver. In certain cases, smaller quantities of it are found in ores of copper, lead, etc., which are themselves worth mining. It is obvious from the foregoing considerations that, whereas the

Universal money functions as a general means of payment, as a general means of purchase, and as the absolute social embodiment of universal wealth. Its predominant function is that of means of payment, for the settlement of international balances. That is why "the balance of trade" is the watchword of the mercantile system.¹ It is chiefly when the customary balance in the exchange of products between nations has been suddenly disturbed, that gold and silver function as an international means of purchase. Lastly, universal money serves as the absolute social embodiment of wealth whenever the question is, not of

work of producing gold has, on the whole, increased, the work of producing silver has certainly decreased. This affords a natural explanation of the fall in the value of silver. Were it not that the price of silver is still held up by artificial means, the fall in value would have been even greater than it is. The silver deposits of America have as yet been made accessible only to a limited extent, and there is every reason to suppose that silver will continue to fall in value for a long time to come. An additional cause of the relative decline in the value of silver is to be found in the fact that silver is much less used than of old for articles of luxury and articles of daily use, having been replaced by silver plate, aluminium, etc. We see, therefore, how fantastic is the bimetallic illusion that, by enforcing its international currency, silver can be screwed up to its old value ratio of 15½:1. Far more probably, silver will, to an increasing extent, forfeit its character of money in the world market.]

¹ The mercantile system was the system of those economists who regarded the settlement of surplus trade balances in gold and silver as the aim of international trade. Their opponents, in turn, completely failed to understand the function of universal money. By the example of Ricardo, I have shown elsewhere how a false conception of the laws regulating the quantity of the circulating medium is reflected in an equally false conception of the international movement of the precious metals. Ricardo's false dogma, "an unfavourable balance of trade never arises but from a redundant currency. . . . The exportation of the coin is caused by its cheapness, and is not the effect, but the cause of an unfavourable balance", is, therefore, met with already in Barbon, who writes: "The balance of trade, if there be one, is not the cause of sending away the money out of a nation; but that proceeds from the difference of the value of bullion in every country." Barbon, *op. cit.*, pp. 59-60.—In *The Literature of Political Economy, a Classified Catalogue*, London, 1843, McCulloch commends Barbon for this anticipation, but is shrewd enough to ignore the naivety of the terms in which Barbon decks out the absurd supposition on which the "currency principle" is based. McCulloch's abridged catalogue is superficial, and even dishonest, its climax in these respects being found in the sections devoted to the history of monetary theory, the reason being that in this part of the work, McCulloch plays the sycophant to Lord Overstone, whom he calls "undoubtedly the chief of financiers".

buying or of paying, but of transferring wealth from one country to another, and when this transference cannot be effected in the form of commodities, either because of the particular condition of the market, or because of the nature of the specific purpose which has to be fulfilled.¹

Just as every country needs a reserve fund for its home circulation, so does it need one for circulation in the world market. The functions of hoards, therefore, arise partly out of the functions of money as a means for home circulation and home payments, and partly out of its functions as universal money.² For this latter function, the actual money commodity, hard cash in gold and silver, is always needed. That is why Sir James Stewart, wishing to distinguish gold and silver from their purely local substitutes, speaks of them in such terms as "money of the world."

The current of gold and silver is a twofold one. On the one hand, there is a current from the sources of the supply of the precious metals into all the markets in the world, where these metals become absorbed to varying degrees into the different national spheres of circulation, filling the home channels of currency, replacing worn gold and silver coins, supplying the raw material for luxury commodities, and consolidating into hoards.³ This primary current is started by the direct exchange of the labour which, in various

¹ For the payment of subsidies, for monetary loans to assist in carrying on wars, and for advances to enable banks to resume cash payments, value in the money form may be expressly required.

² "I would desire, indeed, no more convincing evidence of the competency of the machinery of the hoards in specie-paying countries to perform every necessary office of international adjustment without any sensible aid from the general circulation, than the facility with which France, when but just recovering from the shock of a destructive foreign invasion, completed within the space of twenty-seven months the payment of her forced contribution of nearly twenty millions to the allied powers, and a considerable proportion of the sum in specie, without perceptible contraction or derangement of her domestic currency, or even any alarming fluctuation of her exchanges." Pallaton, *op. cit.*, p. 132.—[Note added by Engels to the fourth edition: We have a still more striking example in the case with which, during the space of thirty months in the years 1871 to 1873, France was able to pay a war indemnity ten times as great, and, in like manner, to a large extent in hard cash.]

³ "Money is distributed among the nations proportionally to their varying needs, . . . being always attracted by products." Le Trostre, *op. cit.*, p. 196.—"The mines which are continually giving gold and silver, do give sufficient to supply such a needful balance to every nation." J. Vandenhout, *op. cit.*, p. 40.

countries, has been embodied in commodities, for the labour which has been embodied in gold and silver in countries where these precious metals are produced. On the other hand, gold and silver are continually flowing backwards and forwards between the different spheres of national circulation, this movement being one which follows the perpetual oscillations in the course of international exchange.¹

In countries where the bourgeois method of production is well developed, the hoards concentrated in the strong-rooms of the banks are restricted to the minimum requisite for the performance of their specific functions.² With certain exceptions, an increase of the hoards to an amount much above their average is an indication of a stagnation in the circulation of commodities, an interruption in the even flow of their metamorphoses.³

¹ "Exchanges rise and fall every week, and at some particular times in the year run high against a nation, and at other times run as high on the contrary." *Barbon, op. cit.*, p. 39.

² These various functions are liable to come into perilous conflict⁴ one with another whenever gold and silver have also to serve as a fund for the conversion of banknotes.

³ "What money is more than of absolute necessity for a home trade, is dead stock, and brings no profit to that country it's kept in, but as it is transported in trade, as well as imported." John Bellers, *Essays, etc.*, p. 12.—"What if we have too much coin? We may melt down the heaviest and turn it into the splendour of plate, vessels, or utensils of gold and silver; or send it out as a commodity, where the same is wanted or desired; or let it out at interest, where interest is high." W. Petty, *Quæsihuncusque*, p. 39.—"Money is but the fat of the body politic, whereof too much doth as often hinder its agility, as too little makes it sick. . . . As fat lubricates the motion of the muscles, feeds in want of victuals, fills up the uneven cavities, and beautifies the body; so doth money in the State quicken its action, feeds from abroad in time of dearth at home; evens accounts, . . . and beautifies the whole; although" [the author's irony breaks through in his conclusion] "more especially the particular persons that have it in plenty." W. Petty, *Political Anatomy of Ireland*, p. 14.

PART TWO

TRANSFORMATION OF MONEY INTO CAPITAL

CHAPTER FOUR

TRANSFORMATION OF MONEY INTO CAPITAL

I. GENERAL FORMULA OF CAPITAL.

THE circulation of commodities is the starting-point of capital. Commodity production and that highly developed form of commodity circulation which is known as commerce constitute the historical groundwork upon which it rises. The modern history of capital begins in the sixteenth century with the establishment of a worldwide commercial system and the opening of a world market.

If we ignore the material substance of the circulation of commodities, ignore the exchange of the various use-values one for another, and confine our attention to the economic forms which the process generates, we see that its final product is money. This final product of the circulation of commodities is the first phenomenal form of capital.

From the historical outlook, capital comes in the first instance to confront landed property in the form of money; it appears as money property, merchants' (mercantile) capital and usurers' (moneylenders') capital.* But we have no need to look back into the origin of capital in order to recognise that money is its first phenomenal form. This history is repeated daily under our own eyes. Every new aggregate of capital enters upon the stage, comes into the market (the commodity market, the labour market, or the money market), in the form of money—of money which, by a definite process, has to be transformed into capital.

The primary distinction between money as money and money as capital is nothing more than a difference between their respective forms of circulation.

The simplest form of the circulation of commodities is $C - M - C$, the transformation of a commodity into money,

* The contrast between the power that is based on personal relations of dominion and servitude, the power that is conferred by landed property, on the one hand, and, on the other, the impersonal power conferred by the ownership of money, is well expressed by two French proverbs, which may be translated as follows: "There is no land without a seigneur," and "Money has no master."

and the retransformation of money into a commodity; selling in order to buy. However, side by side with this form, we find another, which is specifically different. We find the form $M - C - M$, the transformation of money into commodities, and the retransformation of commodities into money, buying in order to sell. Money that circulates in the latter way is thereby transformed into capital, is already potential capital.

Let us examine this circuit $M - C - M$ more closely. Like the simple circuit $C - M - C$, it passes through two antithetical phases. In the first phase, $M - C$, purchase, money is transformed into commodities; in the second phase, $C - M$, sale, commodities are retransformed into money. The combination of these two phases is the aggregate movement thanks to which money is exchanged for commodities and these commodities are exchanged back for money, commodities being bought in order to sell them again—or, if we ignore the formal distinction between buying and selling, we can say that money buys commodities, and then commodities buy money.¹ The upshot of the whole process is the exchange of money for money, $M - M$. If for £100 I buy 2,000 lbs. of cotton, and then sell the 2,000 lbs. of cotton for £110, I have, in the end, exchanged £100 for £110, money for money.

Now it is obvious that the circuit, $M - C - M$, would be absurd and unmeaning were it to eventuate, after all our trouble, in nothing more than the replacement of a certain sum of money by another sum of money of exactly the same amount, for instance, £100 by £100. The hoarder, who simply holds fast to his £100 without exposing it to the risks of circulation, has an easier and safer method than this. On the other hand, no matter whether the merchant who has bought cotton with £100 sells this cotton again for £110, or for £100, or even for as little as £90, in any case his money has undergone a movement of a peculiar kind, very different from the movement of the simple circulation of commodities, as, for instance, when a peasant sells corn, and with the money paid for it buys clothing. Our first business, then, is to study the distinctive characteristics of the respective circuits, $M - C - M$ and

¹ "With money we buy merchandise; and with merchandise we buy money." Mercier de la Rivière, *L'ordre naturel et essentiel des sociétés politiques*, p. 343.

$C - M - C$. The real differences underlying mere differences of form will then disclose themselves.

Let us first ask what the two forms have in common.

Each of the circuits can be analysed into two antithetical phases, which are the same in both cases: $C - M$, sale, and $M - C$, purchase. In each of the two phases the same two material elements, commodity and money, confront one another; and two persons confront one another wearing the same economic masks, a buyer and a seller. Each of the two circuits is the aggregate of the same two antithetical phases, and in each case the aggregate is established by the intervention of three contracting parties, of whom one does nothing but sell, another does nothing but buy, while the third both buys and sells.

But what from the first distinguishes the two circuits, $C - M - C$ and $M - C - M$, each from the other is the inverted order of succession of the two phases. The simple circulation of money as capital begins with purchase and ends with sale. In one case, the commodity, and, in the other case, money, forms the starting-point and the goal of the movement. In the first form, money determines the circulation; in the second form, conversely, the commodity determines it.

In the circuit $C - M - C$, money is ultimately transformed into commodities, which serve as use-values. The money is spent once for all. In the converse form, $M - C - M$, on the other hand, the purchaser surrenders money in order that, as a seller, he may get money back. When he buys commodities, he puts money into circulation, in order to take money back out of circulation when he sells the same commodities. He only parts with his money with the sly purpose of getting it back again. Money, therefore, is not spent, but merely advanced.¹

In the form $C - M - C$, the same coin changes places twice. The seller receives it from the buyer, and pays it away to another seller. The whole process, which begins with the receiving of money for commodities, ends with the paying of money for commodities. It is the other way about in the form $M - C - M$. What changes hands twice

¹ "When a thing is bought, in order to be sold again, the sum employed is called money advanced; when it is bought not to be sold, it must be said to be expended." James Stewart, *Works*, etc., edited by General Sir James Stewart, his son, London, 1800, vol. I, p. 274.

is not the same piece of money, but the same commodity. The buyer receives it from the seller and passes it on to another buyer. Just as, in the simple circulation of commodities, the twofold changes of place of the same coin bring about its definitive transference from the hands of one person into the hands of another, so, here, the twofold changes of place of the same commodity effect the return of the money to its starting-point.

The return of the money to its starting-point is independent of the question whether the commodity is sold for a higher price than that for which it was bought. All that this circumstance influences is the amount of money that flows back. The reflux takes place as soon as the purchased commodity is sold once more, as soon, that is to say, as the circuit, $M - C - M$, is completed. Here, then, we have a palpable difference between the circulation of money as capital, and its circulation as mere money.

The circuit, $C - M - C$, is finished as soon as the sale of a commodity brings money which the purchase of another commodity has taken away. If, nevertheless, money flows back to its starting-point, this can only be owing to the renewal or repetition of the whole operation. If I sell a quarter of wheat for £3, and with this sum buy clothes, then the £3 has been, as far as I am concerned, spent once for all. I have nothing more to do with this sum of money. What happens to it concerns the clothier. If, now, I sell a second quarter of wheat, then money flows back to me, but not in consequence of the first transaction. It flows back only because the transaction has been repeated. It will flow away from me again as soon as I complete the second transaction and make a new purchase. Thus in the circuit $C - M - C$, the spending of the money has nothing to do with its reflux. In the circuit, $M - C - M$, on the other hand, the reflux of the money is itself determined by the method of expenditure. Unless this reflux occurs, the operation has failed, or the process has been interrupted and remains incomplete, for its second phase, the sale which should supplement and conclude the purchase, is lacking.

The circuit, $C - M - C$, starts with one commodity and finishes with another, which falls out of the sphere of circulation and enters the sphere of consumption. Its final purpose, therefore, is consumption, the satisfaction of wants, in a word, use-value. The circuit, $M - C - M$, on the

other hand, sets out from money, and ultimately comes back to money again. Its leading motive, the purpose which actuates it, is, therefore, exchange-value.

In the simple circulation of commodities, the two extremes have the same economic form. They are both commodities. They are also commodities having the same magnitude of value. But as use-values they are qualitatively distinct, being, for instance, wheat and clothing. The exchange of products, the interchange of the various substances in which social labour has been embodied, forms here the basis of the movement. It is otherwise in the circuit, $M-C-M$. At the first glance this circuit seems purposeless, because tautological. The two extremes have the same economic form. They are both money, and, therefore, are not qualitatively different use-values, seeing that money is the transformed shape of commodities, the shape in which they have forfeited their particular use-values. To begin by exchanging £100 for cotton, and to end by exchanging this same cotton for £100—the detour thanks to which money once more becomes money, thanks to which a thing is exchanged for the same thing—seems no less purposeless than absurd.¹

¹ "We do not exchange money for money," exclaims Mercier de la Rivière, when arguing against the mercantilists (*op. cit.*, p. 488).—In a work whose title expressly declares that it treats of "trade" and "speculation", we read the following: "All trade consists in the exchange of things of different kinds; and the advantage" [to the merchant?] "arises out of this difference. To exchange a pound of bread against a pound of bread, would be attended with no advantage. . . . Hence trade is advantageously contrasted with gambling, which consists in a mere exchange of money for money." Thomas Corbet, *An Inquiry into the Causes and Modes of the Wealth of Individuals; or the Principles of Trade and Speculation explained*, London, 1841, p. 5.—Though Corbet fails to see that $M-M$, the exchange of money for money, is the characteristic form of circulation, not only of mercantile capital, but of all capital, yet he at any rate admits that this form is common to gambling and to one species of trade, namely speculation. Thereupon McCulloch appears and tells us that to buy is order to sell is to speculate. Thus the difference between speculation and trade disappears. "Every transaction in which an individual buys produce in order to sell it again, is, in fact, a speculation." *A Dictionary Practical, etc., of Commerce*, London, 1847, p. 1038.—With far more naivety, Pinto, the Pindar of the Amsterdam stock exchange, remarks: "Commerce is a game at hazard" (this is taken from Locke), "and we shall not win anything if those against whom we play are beggars. Even if we did gain in the long run, we should still have to surrender the greater part of our profit if we wanted to begin the game once more." *Traité de la circulation et de crédit*, Amsterdam, 1777, p. 431.

The only way in which one sum of money can be distinguished from another sum of money is in respect of magnitude. The process, $M-C-M$, therefore, does not owe its meaning to any qualitative difference between its two extremes, for both of them are money; it can only owe its meaning to a quantitative difference between these extremes. In the end, more money is withdrawn from circulation than was put into circulation to begin with. For instance, the cotton bought for £100 is sold for £100 plus £10, or £110. The complete form of this process, therefore, is $M-C-M'$, in which $M' = M + \Delta M$, that is to say — the original sum advanced plus an increment. This increment or excess over the original value is what I call *surplus value*. The value originally advanced, therefore, not only remains intact while in circulation, but in the course of circulation undergoes a change in the magnitude of its value, adding to itself a surplus value, or expanding itself. It is this movement that converts it into capital.

Of course it is also possible that in $C-M-C$, the two extremes, C and C (for instance, wheat and clothing), may represent different magnitudes of value. The farmer may sell his wheat above its value, or may buy his clothing at less than its value. He may be taken advantage of by the clothier. Nevertheless, in the form of circulation we are now considering, such differences in value are purely accidental. The process does not lose all meaning here because its extremes, wheat and clothing, are equivalents, as the process $M-C-M$ loses all meaning when the money at the start and at the finish are the same amount. Indeed, in $C-M-C$ an equivalence of values is, rather, a necessary condition to the normality of the circuit.

The repetition or renewal of the act of sale in order to buy again, is restricted by the object at which it aims, consumption, the gratification of specific wants. When we buy in order to sell, on the other hand, the beginning and the end of the process are the same, money, exchange-value; and, were it only for this reason, the movement is interminable. No doubt, M becomes $M + \Delta M$, £100 becomes £110. But, if we look at the matter from a purely qualitative aspect, £110 is the same as £100, namely money. Furthermore, quantitatively regarded, £110 is a restricted amount of value, just as £100 is. If the £110 is spent as money, this sum of money ceases to play

its part. It is no longer capital. Withdrawn from circulation, it is petrified into a hoard, and will not increase by a single farthing even though it be hoarded for all time. If, therefore, the aim be to bring about the expansion of value, then there is just as much inducement to increase the value of £110 as to increase the value of £100; seeing that both are but limited expressions for exchange-value, and therefore both have it as their mission to approach as near as may be to absolute wealth, by means of an extension of magnitude. Momentarily, indeed, the value originally advanced, the sum of £100, is distinguishable from the surplus value of £10 added to it in the course of circulation, but this difference speedily vanishes. It does not happen that at the end of the process the person who originally owned the £100 gets back this primary value in one portion, and the surplus value of £10 in another portion. What he gets is a united value of £110, in a form ready to begin the process of expansion over again, just as the original £100 was ready to begin that process. Money ends its movement only to begin that movement over again.¹ Therefore the final result of every circuit in which buying in order to sell is completed, forms the starting-point of a new circuit. The simple circulation of commodities (selling in order to buy) is a means for carrying out a purpose which lies outside the domain of circulation; a means for the appropriation of use-values, for the satisfaction of wants. The circulation of money as capital, on the other hand, is an end in itself, for the expansion of value can only occur within this perpetually renewed movement. Consequently, the circulation of capital has no limits.²

¹ "Capital is divisible . . . into original capital and the profit, the increment of the capital . . . although, in practice, this profit is immediately turned into capital, and set in motion with the original," F. Engels, *Ursahre zu einer Kritik der Nationalökonomie* in "Deutsch-Französische Jahrbücher," edited by Arnold Ruge and Karl Marx, Paris, 1844, p. 93.

² Aristotle contrasts "oikonomikos" with "chrematistike" (money making). He starts from the former. In so far as economics are the art of gaining a livelihood, this art is restricted to procuring the things which are necessary for existence, and useful either to a household or to the State. He writes: "True wealth consists of such use-values; for the quantity of possessions of this kind capable of making life pleasant is not unlimited. There is, however, a second way of acquiring things, to which it is advantageous and right to give the name of chrematistike, in whose domain there seems to be

It is as the conscious representative of this movement that the owner of money becomes a capitalist. His person, or rather his pocket, is the point from which money sets out and the point to which it returns. The objective purpose of this circulation, the expansion of value, is his subjective aim; and only in so far as the increasing appropriation of abstract wealth is the sole motive of his operations does he function as a capitalist, or as personified capital endowed with will and consciousness. Thus use-value is never to be regarded as the direct aim of the capitalist.¹ Nor is the profit on any single transaction his aim, for what he aims at is the never-ending process of profit making.² This urge towards absolute enrichment, this passionate hunt for value,³ is shared by the capitalist with the miser; but

no limit to riches and possessions. Trade" [the word Aristotle uses means "retail trade", and he uses that word because in retail trade use-values predominate] "does not in its nature belong to chrematistics, for here exchange relates only to things necessary to the buyer and the seller." Therefore, as he goes on to show, the original form of trade was barter; but, as the practice of barter became intensified, money necessarily originated. With the discovery of money, barter perforce developed into trade, and this, in contradistinction to its primary tendency, became transformed into chrematistics, into the art of making money. Chrematistics are distinguished from economics by this, that "for chrematistics circulation is the source of wealth. And chrematistics appear to turn upon money, for money is the beginning and the end of this kind of exchange. Therefore wealth, as chrematistics strive to attain it, is unlimited. Just as every art that is not a means to an end, but an end in itself, is unrestricted in its aim, because it continually strives to approach nearer to that aim, whereas the arts that are merely pursued as means to an end are not unlimited, seeing that the aim itself imposes limits—so, for chrematistics, there is no limit to their aim, seeing that their aim is absolute enrichment. Economies have a limit, but chrematistics have not. . . . Economics aim at something different from money, whereas chrematistics aim at increasing money. . . . By confounding these two forms which overlap one another, some have been led to look upon the preservation and increase of money to an infinite extent as the final aim of economics." Aristotle, *De reipublica*, lib. I, caps. 8 and 9, passages.

"Commodities" [read, use-values] "are not the terminating object of the trading capitalist. . . . Money is his terminating object." Thomas Chalmers, *On Political Economy*, etc., second edition, London, 1832, p. 166.

"The merchant cares little or nothing for the profit he has made, for he is always looking forward to further profit." A. Genovesi, *Lezioni di economia civile*, 1763, Castaldi's edition, modern section, vol. VIII, p. 130.

"The insatiable passion for gain, the avarice sacra fames [accursed hunger for gold] will always lead capitalists." McCulloch,

whereas a miser is only a capitalist gone mad, a capitalist is a miser who has come to his senses. The unceasing increment of value at which the miser aims in his endeavour to save his money from circulation,¹ is attained by the shrewder capitalist by again and ever again handing over his money to circulation.²

The independent forms, the money forms, which the value of commodities assumes in the process of simple circulation, serve merely to bring about the exchange of commodities, and vanish in the final outcome of the movement. In the circuit, $M-C-M$, on the other hand, commodity and money serve only as different modes of existence of value, the money being its general mode of existence, and the commodity being its particular mode of existence (so to say, its disguised mode).³ The value of the commodities is continually passing from one form to another, without being thereby lost, and it thus assumes an automatically active character. If we fix our attention on the two particular phenomenal forms which the expanding value alternately assumes in the circulation which makes up its life, we arrive at these two propositions: "Capital is money"; and "Capital is commodities".⁴ Really and truly, however, value is here the active factor in a process in which, while continually assuming by turns the form of money and the form of commodities, it at the same time changes in magnitude, gives birth to surplus value, so that the original

The Principles of Political Economy, London, 1840, p. 179.—I need hardly say that, despite such flashes of insight, McCulloch and his congeners, when their discussion of economic theory leads them into embarrassments (as when they are dealing with overproduction), do not hesitate to transform this same capitalist into a good citizen, into one whose only labour is in the value, into one who has a werewolf's appetite for boots, hats, eggs, cotton, and other everyday kinds of use-value.

¹ The word "saves," with its double significance, has an exact counterpart in Greek.

² "That infinity which things do not possess when they are moving directly forwards, they possess when they turn round." Gallani.

³ "What makes capital is not material substance, but the value of material substance." J. B. Say, *Traité de l'économie politique*, third edition, Paris, 1817, vol. I, p. 408.

⁴ "Currency[] employed in producing articles . . . is capital." Macleod, *The Theory and Practice of Banking*, London, 1853, vol. I, chap. I, p. 33.—"Capital is commodities." James Mill, *Elements of Political Economy*, London, 1826, p. 74.

value spontaneously expands. For the movement in which it adds to itself a surplus value is its own movement, its expansion, its self-expansion. It has acquired the occult quality of being able to add value to itself. It brings forth living offspring, or at least lays golden eggs.

Value, therefore, being the active factor in such a process (assuming at one time the form of money, at another that of commodities, but through all these changes maintaining itself and expanding), requires, above all, an independent form whereby its identity may at any time be established. Only in money does it possess such a form. Money, therefore, constitutes the starting-point and the goal of every process of the self-expansion of capital. At first, the value was £100; now it is £110; and so on. But here the money itself serves only as one of the forms of value, which has two forms. Money does not become capital unless it assumes the commodity form. The money, therefore, does not here set itself up in antagonism to the commodity, as happens in the case of the miser's hoard. The capitalist knows that all commodities, however paltry they may look or however evil they may smell, are in faith and in truth money, are inwardly circumcised Jews, and, what is more, are a wonderful means whereby, out of money, more money can be made.

In simple circulation, the value of commodities acquires nothing more than the independent form of money as confronting their use-values; but now, in the circuit, $M-C-M$, in the circulation of capital, this same value suddenly presents itself as substance endowed with an independent motion of its own, a substance of which commodities and money are themselves merely forms. Nay more. Instead of representing relations of commodities, it enters, so to say, into a private relation to itself. It distinguishes itself as its primary value from itself as surplus value, much as God the Father distinguishes himself from himself as God the Son; yet both are of one and the same age, and both, in fact, form only one person, seeing that only through the addition of the surplus value of £10 does the original advance of £100 become capital; as soon as this takes place, as soon as the Son, and by the Son the Father, is begotten, the difference between the two vanishes, and both become one, £110.

Value thus becomes processional value, processional

money, and as such capital, it falls out of circulation, and then returns to circulation, maintains itself and multiplies itself in circulation, comes back out of circulation enlarged, and is always beginning the same circuit over and over again.¹ $M-M'$, money which begets money, such is the description of capital given by its first interpreters, the mercantilists.

Buying in order to sell, or, to express the matter more fully, buying in order to sell at a higher price, $M-C-M'$, would seem, of course, to be only one form of capital, namely mercantile capital, a special form. But industrial capital, too, is money, which transforms itself into commodities, and then, by the sale of these commodities, transforms itself back into more money than before. Actions that take place somewhere between the buying and the selling, outside the sphere of circulation, do not affect this form of the movement. Lastly, in the case of interest-bearing capital, the circulation $M-C-M'$ is abbreviated, for it presents itself to us as a result achieved without the services of any intermediary, presents itself so to say in the lapidary style as $M-M'$, money which is equal to more money, value which is greater than itself.

In actual fact, then, $M-C-M'$ is the general formula of capital, as it makes its appearance within the sphere of circulation.

2. CONTRADICTIONS IN THE GENERAL FORMULA OF CAPITAL.

The form which circulation takes when money becomes capital, conflicts with all the laws we have hitherto studied concerning the nature of the commodity, of value, of money, and even of circulation itself. What distinguishes it from the simple circulation of commodities is the inverted order of succession of the two antithetical processes, sale and purchase. How can this purely formal distinction change, as if by magic, the nature of these processes?

But there is something even more remarkable. The inversion only exists for one of the three persons who transact business together. As a capitalist I buy commodities from A and sell them to B, while as a simple owner

¹ "Capital . . . a fructifying portion of accumulated wealth, . . . permanent value multiplying itself." Sismondi, *Principes de l'économie politique*, vol. I, pp. 58-59.

of commodities I sell commodities to B and then buy commodities from A. As far as A and B are concerned, this differentiation of roles is irrelevant. They appear only as buyers or sellers of commodities, but I always confront them either as the owner of money or as the owner of commodities, either as buyer or as seller; and, what is more, in both sets of transactions I confront A only as a buyer and B only as a seller, confront one only as money and the other only as commodities, not confronting either of them as capital, or as capitalist, or as representative of anything more than either money or commodities, or something able to exert other influences than those exerted by money or commodities. For me, the purchase from A and the sale to B constitute a series. But the connexion between these two actions exists for me alone. A does not concern himself about my transaction with B, nor does B concern himself about my transaction with A. Should I try to make it clear to them what is the special service that I do by inverting the order of succession, they would show me that I was mistaken as to that order of succession, and that the whole transaction, instead of beginning with a purchase and ending with a sale, began with a sale and ended with a purchase. In fact, my first action, the purchase, was from A's standpoint a sale; and my second action, the sale, was from B's standpoint a purchase. Not content with this, A and B will declare that the whole series has been superfluous, and mere *bocus-pocus*. In future they will tell me A will sell direct to B, and B will buy direct from A. Then the transaction will be reduced to a single act belonging to the domain of the ordinary circulation of commodities; from A's standpoint, nothing but a sale, and, from B's standpoint, nothing but a purchase. Thus our inversion of the order of succession has not taken us outside the sphere of the simple circulation of commodities; and we must, rather, enquire whether there exists in this simple circulation anything that permits an expansion of the value that enters into circulation, and, consequently, a creation of surplus value.

Let us consider the process of circulation in a form in which it presents itself as a mere exchange of commodities. This is always the case when the two owners of commodities buy commodities each from the other, and when, on settling-day, their respective pecuniary liabilities balance one

another. Here money serves as money of account, in order to express the values of the commodities in their prices, but does not confront the commodities in a material form as hard cash. In so far as we have to do with use-values, it is obvious that both parties to the exchange may gain thereby. Each of them is alienating commodities which have no use-value for him, and each of them is acquiring commodities which he needs for his own use. This advantage may not be the only one. A, who sells wine and buys grain, perhaps produces more wine, in a given labour time, than farmer B could, and B, on the other hand, produces more grain than winegrower A could. For the same exchange-value, therefore, A may get more grain, and B more wine than each would respectively get without any exchange by producing his own grain and wine. Thus with regard to use-value, it may be said that "exchange is an admirable transaction, in which the two contracting parties gain—always"[[1]] But it is otherwise with exchange-value. "A man with plenty of wine and no grain, bargains with a man who has plenty of grain and no wine. An exchange takes place, of grain to the value of 50, for wine of the same value. This exchange produces no increase of wealth either for the one or for the other, seeing that, before the exchange, each of them already owned a value equal to that which he acquires by means of the operation."² Nor does it affect the case when money intervenes between the commodities as a means of circulation, so that buying and selling become two distinct actions.³ The value of the commodities is expressed in their prices before they enter into circulation; it is a presupposition of that circulation and not a result thereof.⁴

Looking at the matter abstractly, apart from circumstances which do not arise out of the immanent laws of the simple circulation of commodities, there is in an exchange nothing (if we except the replacing of one use-value by another) but a metamorphosis, a mere change in the form

¹ Destutt de Tracy, *Traité de la valeur et de ses effets*, Paris, 1826, p. 58. This book was subsequently reissued as *Traité de l'économie politique*.

² Mercier de la Rivière, *op. cit.*, p. 522.

³ "It does not matter in the least whether one of these two values is money or whether both of them are ordinary use-values," Mercier de la Rivière, *op. cit.*, p. 523.

⁴ "It is not the contracting parties who decide the value: that is already decided before the bargain is made." La Trobe, *op. cit.*, p. 306.

of the commodity. The same value, that is to say the same amount of embodied social labour, is left in the hands of the respective owners of commodities, in the form, first of a commodity, then of the money into which the commodity is transformed, and finally of the commodity into which this money is retransformed. Such a change of form does not imply any change in the magnitude of value. But the change which the value of the commodity undergoes in this process is limited to a change in its money form. This money form exists, first of all, as the price of the commodity offered for sale; then as a definite sum of money which was antecedently expressed in the price; and finally as the price of an equivalent commodity. In and by itself, the change of form does not necessarily imply any change in the magnitude of value, any more than the changing of a five pound note into sovereigns, half-sovereigns, and shillings, implies any change in the magnitude of value. In so far, therefore, as the circulation of commodities merely brings about a change in the form of their value, and is free from disturbing influences, it cannot be anything else than an exchange of equivalents. Consequently the vulgar economists, little as they understand what value is, always assume, when they wish to regard the phenomenon without complications, that supply and demand are equal, which amounts to saying that they have no effect. Whereas, therefore, both parties to an exchange can gain as regards use-value, it is impossible that they should both gain as regards exchange-value. Here we must rather say: "Where equality exists, there can be no gain."¹ It is true that commodities may be sold at prices which deviate from their values, but this deviation is an infringement of the law of exchange of commodities.² In its pure form, exchange is an exchange of equivalents, and therefore is not a means for increasing value.³

¹ Galliani, *Della moneta*, Castelli's edition, modern section, vol. IV, p. 244.

² "Exchange may be disadvantageous to one of the parties, when some outside circumstance lowers or raises the price; then equality is infringed, but the infringement is the result of the aforesaid cause, and not of the exchange." Le Trostre, *op. cit.*, p. 304.

³ "From its very nature, exchange is a contract on equal terms, in which a value is exchanged for an equal value. Consequently, it is not a means whereby any one can grow rich, seeing that he gives as much as he receives." Le Trostre, *op. cit.*, p. 303.

Behind attempts to represent the circulation of commodities as a source of surplus value, there usually lurks a confusion between use-value and exchange-value. For instance, Condillac writes: "It is not true that, in an exchange of commodities, we give value for value. On the contrary, each of the two contracting parties, in every case, gives a less for a greater value. . . . If we really exchanged equal values, neither party could make a profit, and yet, they both gain, or ought to gain. Why? The value of a thing exists solely in its relation to our wants. What is more to one person is less to another, and conversely. . . . It must not be assumed that we offer for sale articles required for our own consumption. . . . We wish to part with a useless thing, in order to get one that we need; we want to give less for more. . . . It was natural to think that in an exchange, value was given for value whenever each of the articles exchanged was of equal value with the same quantity of money. . . . But there is another point to be considered in our calculations. The question is whether each party is not exchanging that which he regards as superfluous for that which he regards as necessary."¹ The reader will see that Condillac does not merely lump together use-value and exchange-value, but in a really childish fashion (for a member of a society in which commodity production was well developed) assumes the existence of a state of affairs in which the producer produces his own means of subsistence, and only puts into circulation the excess over and above what is required to satisfy his own wants.² Nevertheless, Condillac's argument has often been repeated by modern economists; especially when they have wished to represent commerce, the developed form of the exchange of commodities, as productive of surplus value. For instance: "Commerce . . .

¹ *Le commerce et le gouvernement*, 1776. Daloz's and Molinari's edition in *Mélanges d'économie politique*, Paris, 1817, p. 167.

² Le Tasse, therefore, answers his friend Condillac aptly when he says: "In a developed society, no superabundance of the assumed kind exists." At the same time he remarks harshly, "If both parties to the exchange receive simultaneously much more for much less, then both have received equal amounts." It is because Condillac had not the remotest idea of the nature of exchange-value that Professor Wilhelm Roemer selected that worthy to stand sponsor to his own infamous notions. See Roemer, *Die Grundlagen der Nationalökonomie*, third edition, 1898.

adds value to products, for the same products in the hands of consumers are worth more than in the hands of producers, and it may strictly be considered as an act of production".¹ But commodities are not paid for twice over, once in accordance with their use-value, and another time in accordance with their value. Even if the use-value of a commodity is more useful to the buyer than to the seller, it is equally true that its money form is more useful to the seller than to the buyer. Were it otherwise, why should any one sell? We might, therefore, just as well say that the buyer engages in what must be "strictly" regarded as an act of production when he transforms stockings, for example, into money.

If commodities are exchanged for one another as equivalents, or if commodities are exchanged for money having an equal exchange-value, obviously no more value is withdrawn from circulation than is put into it. Consequently, there is no creation of surplus value. In its pure form, the circulation of commodities demands an exchange of equivalents. But in the real world things do not occur in a pure form. Let us, therefore, suppose that there can be an exchange of non-equivalents.

In any case, the commodity market is one to which none come who are not the owners of commodities, and the power which these persons exercise over one another is only the power of their commodities. The material difference between the commodities is the material motive of the exchange, and this difference makes the owners of commodities mutually dependent one upon the other, inasmuch as not one of them has the object of his own wants, and every one of them has the objects which others want. Apart from the material difference in their use-values, there exists only one more difference between the commodities, the difference between their bodily form and their metamorphosed form, between commodities and money. For this reason, the only difference between the owners of commodities is the difference between them as sellers, the owners of commodities, and as buyers, the owners of money.

Now let us suppose that, thanks to some inexplicable privilege, the seller is able to sell his commodities above

their value, perhaps at £110 when they are worth £100, that is to say with a nominal rise of 10 % in the price. Thus the seller pockets a surplus value of £10. But, after being a seller, he becomes a buyer. A third owner of commodities now confronts him as seller, and enjoys the same privilege, that of selling his commodities at 10 % above their value. Our man has gained as a seller simply in order to lose as a buyer, £10 in each case.¹ In fact, the whole thing amounts to this, that all the owners of commodities sell their commodities at 10 % above value, which comes to the same thing as if they sold their commodities at the actual value. Such a general nominal rise in the prices of commodities has the same effect as if the values of the commodities had, for instance, been estimated in silver instead of in gold. The money names, that is the prices of the commodities, would then increase, but the ratios between the different values would not be affected.

Let us make the opposite assumption, that the buyer has the privilege of purchasing commodities at less than their value. In this case, it is no longer necessary to bear in mind that the buyer will become a seller. He was a seller before he became a buyer. As seller, he has already lost 10 % before he gains 10 % as buyer.² Everything is just as it was.

The formation of surplus value, and therefore the transformation of money into capital, cannot be explained either on the supposition that the seller sells commodities above their value, or upon the supposition that the buyer buys them below their value.³

The problem is nowise simplified by the introduction of

¹ "By the augmentation of the nominal value of the produce, . . . sellers not enriched . . . since what they gain as sellers, they precisely expend in the quality of buyers." *The Essential Principles of the Wealth of Nations*, etc., London, 1793, p. 66.

² "If we are compelled to hand over for 12 livres an amount of some product or other which is worth 14 livres, when we come to use this same money for buying, we shall, in turn, get for 12 livres that which is worth 14." *Le Trésor*, op. cit., p. 307.

³ "No seller, therefore, will be able, as a regular thing, to sell his merchandise at an excessive price, unless he is content, in his turn, as a regular thing, to pay an excessive price for the merchandise of other sellers; and, for the same reason, no consumer will be able, as a regular thing, to pay an unduly small price for what he buys, unless he is willing to accept a correspondingly low price for the things which he sells." *Marxier de la Rivière*, op. cit., p. 133.

irrelevant considerations, after the manner of Colonel Torrens, who writes: "Effectual demand consists in the power and inclination [!] on the part of the consumers, to give for commodities, either by immediate or circuitous barter, some greater portion of . . . capital than their production costs."¹ In the process of circulation, producers and consumers confront one another as buyers and sellers. To maintain that for producers surplus value is obtained by making the consumers pay for commodities more than these are worth, is only to say in other words: "The owner of commodities possesses, as a seller, the privilege of selling too dear." The seller has produced the commodities, or represents their producer; but the buyer, no less, has produced the commodities represented by his money, or he represents their producer. Consequently, producer confronts producer. The only thing that differentiates them is that one is selling and one is buying. We do not get any further by supposing that the owner of commodities as producer sells commodities above their value and that as consumer he buys them at above their value.²

To be consistent, therefore, those who champion the illusion that surplus value is derived from a nominal increase in price, or from a privilege that sellers have of selling their commodities too dear, must therefore assume the existence of a class of persons who buy but do not sell, who, that is to say, consume without producing. From the point of view hitherto reached, that of simple circulation, the existence of such a class remains inexplicable. Let us, however, anticipate for a moment. The money with which the members of such a class go on buying continually, must flow into their pockets continually, without exchange, gratis, by some legal right or by the law of the stronger; and it must come, somehow, from the owners of commodities. If commodities are sold above their value to the members of such a class, this can mean nothing more than that the owners of commodities are able to charm back a portion of the money which they have given away freely.³ For instance,

¹ *An Essay on the Production of Wealth*, London, 1821, p. 340.

² "The idea of profits being paid by the consumers, is, assuredly, very absurd. Who are the consumers?" G. Ramsay, *An Essay on the Distribution of Wealth*, Edinburgh, 1836, p. 184.

³ "When a man is in want of demand, does Mr. Matthew recommend him to pay some other person to take off his goods?" is a

in the days of ancient Rome, the towns of Asia Minor used to send an annual monetary tribute to the capital of the empire. With this money, Rome used to buy commodities from Asia Minor, and sometimes paid a fancy price for them. The provincials cheated the Romans, and thus, by way of trade, they got back from their conquerors a portion of the tribute. None the less, in the end, the provincials were fleeced. They were paid for their commodities out of their own money. This is not a method of enrichment, it is not a way of creating surplus value.

Let us, therefore, keep within the confines of the exchange of commodities, within the region where the seller-buyer and the buyer-seller confront one another. Our difficulty may perhaps have arisen from treating the persons of our drama as personified categories instead of as individuals.

Commodity owner A may be smart enough to overreach his colleagues B and C, while they, with the best will in the world, are not smart enough to get even with him. A sells B wine to the tune of £40 and gets in exchange wheat worth £50. A has turned his £40 into £50, has made more money out of less and has transformed his commodity into capital. But let us look at the matter more closely. Before the exchange, there was forty pounds' worth of wine in A's hands, and there was fifty pounds' worth of wheat in B's hands, making up a total value of £90. When the exchange is over, the total value is still £90, the amount of values in circulation has not increased by a farthing, the only difference being a matter of distribution as between A and B. If A has surplus value, B has deficit value; if B has a minus, A has a plus. The same change would have occurred if A, without going through the formality of an exchange (a formality which veils the lie), had simply stolen £10 from B. Obviously, the sum total of values in circulation cannot be increased by a mere change in distribution—any more than a Jew can increase the mass of precious metals in a country by selling a Queen Anne

question which an angry disciple of Ricardo propounds to Malthus, who, like his pupil Parson Chalmers, glorifies, as an economist, the class consisting of pure buyers or pure consumers. See *His Inquiry into those Principles respecting the Nature of Demand and the Necessity of Consumption*, lately advocated by Mr. Malthus, etc., London, 1821, p. 55.

farthing for a guinea. The capitalist class of a country cannot, as a whole, overreach itself.²

Turn and twist as we may, the sum total remains the same. If equivalents are exchanged, then no surplus value is created; and if non-equivalents are exchanged, still no surplus value is created.³ Circulation, the exchange of commodities, does not create value.⁴

The reader will therefore understand why, in our analysis of the basic form of capital, our analysis of the form in which it determines the economic organisation of modern society, we can, for the present, completely ignore its popular and so to speak antediluvian forms—merchants' capital and moneylenders' capital.

The circuit, $M—C—M'$, buying in order to sell dearer, is most plainly disclosed by the study of merchants' capital. But there the whole movement goes on within the sphere of circulation. Since, however, it is impossible to explain the transformation of money into capital, the creation of surplus value, simply as an outcome of circulation, it would seem that merchants' capital is an impossibility as long as equivalents are exchanged;⁵ and that, therefore, merchants'

² Destutt de Tracy, although, or perhaps because, he was a member of the Institute, held the opposite view. According to him, industrial capitalists make profits because "they all sell for more than what they sell has cost to produce. And to whom do they sell? In the first instance to one another." *Op. cit.*, p. 139.

³ "When two equal values are exchanged, the exchange neither increases nor diminishes the extent mass of values in a society. Nor, when unequal values are exchanged. . . . Does the exchange make any difference to the sum total of social values, notwithstanding that it adds to the fortune of one party that which it takes away from the fortune of another." J. B. Say, *op. cit.*, vol. I, pp. 434-435. —Say, who is, of course, quite unconcerned about the consequences of this proposition, has lifted it almost verbatim from the physiocrats. Here is another example of the way in which Monsieur Say made use of the writings of the physiocrats (almost forgotten in his day) for the purpose of expanding his own "value". The most famous of all his sayings, "We only buy products with products" (*op. cit.*, vol. II, p. 438), runs as follows in Le Trosne *op. cit.*, p. 392: "Products are only paid for by products".

⁴ "Exchange confers no value at all upon products." F. Wayland, *The Elements of Political Economy*, Boston, 1833, p. 168.

⁵ "Under the rule of invariable equivalents, commerce would be impossible." C. Opérys, *A Treatise on Political Economy*, New York, 1851, p. 64.—"Underlying the difference between real value and exchange-value is the fact that the value of a thing is different from that of what in commerce passes by the name of equivalent, which means that such an equivalent is no equivalent at all." F. Engels, *op. cit.*, p. 96.

capital can only arise because the merchant, who parasitically thrusts himself in between the buying producer and the selling producer of commodities, manages to overreach both. In this sense, Benjamin Franklin says: "War is robbery, commerce is generally cheating".¹ If we are to explain the expansion of merchants' capital as due to anything more than the cheating of the producers of commodities, we shall have to discuss a long series of intermediate links, which are still lacking to us at the present stage, when we are only concerned with the circulation of commodities and its simple factors.

What applies to merchants' capital applies even more strongly to moneylenders' capital. In merchants' capital, the two extremes, the money that is thrown into the market and the augmented money that is withdrawn from the market, are at least connected by a purchase and a sale, in other words, by the movement of circulation. In moneylenders' capital, the form $M-C-M'$ has been abbreviated, so that nothing is left but the extremes without transition, $M-M'$, money exchanged for a larger sum of money—a form that conflicts with the nature of money, and is therefore inexplicable from the outlook of the exchange of commodities. That is why Aristotle wrote: "Since chrematistics are a double science, one part belonging to commerce, and the other to economics, the latter being necessary and praiseworthy, but the former being based on circulation and justly censured (seeing that they are not based on nature but on mutual cheating), therefore the usurer is justly detested, inasmuch as money itself is the source of his gain, and is not used to fulfil the purpose for which it was invented. Money originated out of the exchange of commodities; but interest makes, out of money, more money. Hence its name.² For the begotten are like those who beget them. But interest is money bred from money. So that of all the ways of making a livelihood, this is the most contrary to nature."³

In the course of our investigation we shall find that both merchants' capital and interest-bearing capital are derivative forms. At the same time it will become clear

¹ Works, Sparks' edition, vol. II, p. 376. In *Partridge* it is corrected concerning National Wealth.

² The Greek word for "usury" primarily meant "offspring."

³ Aristotle *op. cit.*, cap. 10.

why these two forms appear earlier in the course of history than does the modern basic form of capital.

It has been shown that surplus value cannot be created by circulation, and that therefore, in the creation of surplus value, there must be something at work in the background, something not visible on the face of the matter.¹ Whence, however, can surplus value arise except out of circulation? Circulation is the totality of the exchange relations between commodity owners. Apart from such relations, the commodity owner's only relation is to his own commodity. So far as regards its value, that relation is limited to this, that the commodity contains a specific amount of his own labour, an amount which is measured by a definite social standard. This amount of labour expresses itself in the magnitude of value of his commodity; and, since magnitudes of value are expressed in money of account, the quantity of labour is expressed by the price of the commodity—by a price, for example, of £10. But his labour is not expressed simultaneously by the value of the commodity and by a supplement to that value; it is not expressed by a price of 10 which is at the same time the price of 11; it is not expressed by a value which is greater than it is. The commodity owner can, by his labour, create values; but he cannot create self-expanding values. He can increase the value of a commodity by adding new value to the old value, and he does this by adding new labour to it, as when he makes boots out of leather. The same material substance then has more value, because it contains a larger amount of labour. A pair of boots, therefore, is worth more than the leather out of which the boots were made; but the value of the leather remains exactly what it was before. This value has not undergone self-expansion; it has not during the process of bootmaking had a surplus value added to itself. Consequently, outside the sphere of circulation, and without coming into contact with other commodity owners, the producer of a commodity cannot possibly expand value, cannot possibly transform money or commodities into capital.

Capital, therefore, cannot originate out of circulation;

¹ "Profit, in the usual condition of the market, is not made by exchanging. Had it not existed before, neither could it after that transaction." Ramsay, *op. cit.*, p. 184.

and yet it is no less impossible that it should originate apart from circulation. Consequently, capital must arise both in circulation and not in circulation.

We have, therefore, come to a double result.

The transformation of money into capital is to be explained on the basis of the laws immanent in the exchange of commodities, is to be explained in such a way that the starting-point is an exchange of equivalents.¹ Mr. Money-bags, who is as yet only an embryo capitalist, must buy his commodities at their value, and must sell them at their value; and nevertheless at the end of the process, he must draw more value out of circulation than he puts into it at starting. From being a caterpillar he must grow into a butterfly, and this transformation must simultaneously take place in the sphere of circulation and outside the sphere of circulation. Such are the conditions of the problem. That is the nut we have to crack!

3. PURCHASE AND SALE OF LABOUR POWER.

The change of value that is to occur in the money which is to be transformed into capital cannot take place in the

¹ The foregoing explanations will have enabled the reader to understand that this statement only means that the formation of capital must be possible even if the price of a commodity is equal to the value of the commodity. The formation of capital cannot be explained out of a deviation of the prices of commodities from their values. Should the price really deviate from the value, we must, to begin with, reduce the price to the value; in other words, we must treat the difference as accidental, so that the phenomenon of the creation of capital upon the basis of the exchange of commodities can be considered in all its simplicity, and without any disturbance of our observations by the intrusion of accessory circumstances which have nothing to do with the real issue. We know, moreover, that a reduction of the kind is not a mere theoretical process. The continual oscillations in market prices, their rise and their fall, cancel one another, reducing themselves to an average price which constitutes their hidden rule. Average prices are the guiding star of the merchant or the industrialist in every undertaking that requires time. He knows that, when a sufficiently long period of time is taken into consideration, commodities are not sold either above or below their price, but are sold at an average price. Were it to his interest to consider the matter disinterestedly, he would formulate the problem of the creation of capital in the following terms: How can we account for the origin of capital on the supposition that prices are regulated by an average price; this, in the last resort, meaning that they are regulated by the value of the commodities? I say "in the last resort", because average prices do not (as Adam Smith, Ricardo, and others, believed) directly coincide with the value of commodities.

money itself, inasmuch as, in its function as means of purchase and as means of payment, it serves merely to realise the price of the commodity it buys or pays for; and, as hard cash, it is value petrified, never varying in magnitude.³ Nor can the change arise out of the second act in the process of circulation, out of the resale of a commodity, for this act serves merely to change the commodity back from its bodily form into its money form. The change must therefore take place in the commodity bought by the first act M—C; but not in the value of that commodity, seeing that equivalents are exchanged, seeing that the commodity is paid for at its proper value. Consequently, the change cannot arise anywhere except in the use-value of the commodity, in its consumption. But if value is to be derived from the consumption of a commodity, Moneybags must be lucky enough to find somewhere within the sphere of circulation, to find in the market, a commodity whose use-value has the peculiar quality of being a source of value; a commodity whose actual consumption is a process whereby labour is embodied, and whereby therefore value is created. Our friend does actually find in the market such a specific commodity. He finds it in the capacity for labour, or labour power.

I use the term *labour power* or *capacity for labour*, to denote the aggregate of those bodily and mental capabilities existing in a human being, which he exercises whenever he produces a use-value of any kind.

But in order that the owner of money may find labour power offering itself for sale as a commodity in the market, various conditions must be fulfilled. An exchange of commodities does not, in and by itself, imply any relation of dependence other than those which arise out of its essential nature. On this assumption, labour power can only make its appearance in the market as a commodity in so far as it is offered for sale or sold as a commodity by its owner, by the person whose labour power it is. But if its owner is to sell it as a commodity, it must be at his own disposal; he must be the actual owner of his capacity for labour, the actual owner of his own person.⁴ The seller of labour

³ "In the form of money . . . capital is productive of no profit." Ricardo, *Principles of Political Economy*, p. 287.

⁴ In classical dictionaries we find such nonsense as the assertion that in the ancient world capital was fully developed, "except that

power and the owner of money meet in the market and enter into mutual relations as commodity owners having equal rights, distinguished only by this, that one of them is a buyer and the other a seller; so that they are equal persons in the eye of the law. Such a relation can only persist on the understanding that the owner of labour power sells that labour power for a definite time and no longer; for if he should sell it once and for all, he would sell himself, would change himself from a freeman into a slave, from an owner of a commodity into a commodity. As an independent person, he must incessantly cling to his labour power as his own property and therefore as his own commodity; and he can only do this in so far as, when he places his labour power at the disposal of the buyer, he does so for a definite period, and hands over its use only for this period—so that, when alienating his labour power for a time, he does not renounce his proprietary rights in it.¹

The second essential condition, if the owner of money is to find labour power in the market, is that the worker, the owner of labour power, shall be one who, instead of being able to sell commodities in which his labour has already been embodied, has to offer for sale his labour power itself, something which does not exist apart from his living personality.

the free worker and the credit system were lacking". Monssen, too, in his *Kleinste Geschichte*, piles up blunders of the kind.

¹ Hence legislation in various countries fixes a maximum term for a labour contract. Wherever free labour prevails, the law prescribes rules for the termination of such contracts. In various countries, especially in Mexico (and before the American Civil War also in the territories taken from Mexico by the United States, and, further, in the Danubian provinces until the revolution brought about by Cossak), slavery is hidden away under the form of peonage. By means of advances, repayable in labour, advances handed down from generation to generation, not only the individual labourer, but his family as well, becomes, for practical purposes, the property of other persons and their families. James had abolished peonage, the so-called Emperor Maximilian reestablished it by decree, and in Congress at Washington this decree was aptly denounced as one for the reintroduction of slavery into Mexico. "I may make over to another the use, for a limited time, of my particular bodily and mental aptitudes and capabilities; for, thanks to this limitation, they retain an outward relation to my entire personality. But if I were to alienate all my working time and the totality of my production, I should be converting the substance itself, in other words my general activity and reality, my individuality, into the property of another." Hegel, *Philosophie des Rechts*, Berlin, 1840, p. 104, § 67.

In order that any one shall be able to sell various commodities distinct from his labour power, he must, of course, own the means of production, such as raw materials, the instruments of labour, etc. He cannot make boots without leather. He needs, also, the means of subsistence. No one, not even one who devotes himself to the building of castles in Spain, can live upon products of the future, or upon use-values in an unfinished state. Ever since man first made his appearance upon the world's stage, he has had to consume day by day, before producing and while producing. If his products are produced as commodities, they have to be sold after they have been produced, and they cannot satisfy the producer's wants until the sale has been effected. The time requisite for their sale must be added to the time requisite for their production.

If, then, the owner of money is to transform his money into capital, he must find in the commodity market a free worker, free in a double sense. The worker must be able to dispose of his labour power as his own commodity; and, on the other hand, he must have no other commodities for sale, must be "free" from everything that is essential for the realisation of his labour power.

The question why this free worker confronts him in the sphere of circulation is of no interest to the owner of money, who regards the labour market as a particular section of the commodity market. Nor, for the moment, are we ourselves interested in this question. We note the fact theoretically, just as the owner of money acts on it practically. One thing, however, is clear. Owners of money or owners of commodities, on the one hand, and persons who own nothing but their labour power, on the other, are not natural products. The relation has not a natural basis, nor is it one met with in all historical epochs. It is manifestly the outcome of an antecedent historical evolution, the product of numerous economic transformations, the upshot of the decay of a whole series of older forms of social production.

So, likewise, the economic categories previously considered bear traces of their historical origin. Special historical conditions are requisite before a product can become a commodity. If a product is to become a commodity, it must not be produced for the direct purpose of satisfying the producer's wants, of satisfying his need

for the means of subsistence. Had we carried our investigation a stage further, had we enquired under what conditions all, or the majority, of products take the form of commodities, we should have found that this can only occur upon the basis of a specific method of production, the capitalist method. But such an investigation lay beyond the scope of our analysis of the commodity. The production and circulation of commodities may occur although the overwhelming mass of products (being primarily produced for the producers' own use) are not transformed into commodities; and although, therefore, the social process of production is a long way, as yet, from being dominated throughout by exchange-value. Articles cannot be produced as commodities unless the division of labour within society has gone so far that the severance between use-value and exchange-value (which makes its first appearance in direct barter) has already been completed. But such a degree of development is common to many economic forms of society which, in other respects, present the most diversified historical characteristics.

On the other hand, when we turn to consider money, we find that its existence presupposes that the exchange of commodities must have undergone a very considerable evolution. The various forms of money—as a mere equivalent for commodities, as circulating medium, as means of payment, as a hoard, and as universal money—point, according to the extent and to the relative preponderance of this, that, or the other function, to very different phases in the social process of production. Nevertheless, experience shows that a moderate degree of development of the circulation of commodities suffices to bring about the appearance of all these different forms. It is otherwise with capital. The mere appearance of the circulation of commodities and the currency of money does not suffice to supply the historical conditions necessary for the existence of capital. It arises only where the owner of the means of production and the means of subsistence finds in the market a free worker who offers his labour power for sale. This one historical condition implies a whole phase of universal history. The first appearance of capital therefore heralds a new epoch in the social process of production.²

² The capitalist period is, consequently, characterised by this, that in the worker's eyes labour power assumes the form of a

This peculiar commodity, labour power, must now receive closer attention. Like all other commodities, it has a value.¹ How is this value determined?

The value of labour power, like that of every other commodity, is determined by the labour time necessary for the production, and consequently for the reproduction as well, of this specific article. In so far as it has value, labour power itself represents nothing more than a definite amount of average social labour which has been incorporated in it. Labour power only exists as a capacity of the living individual; its production presupposes his existence; and therefore the production of labour power is dependent upon the worker's reproduction of himself, upon the worker's maintenance. Now the living individual requires for his maintenance a certain amount of the means of subsistence. This leads us to the conclusion that the labour time necessary for the production of labour power is the labour time necessary for the production of these means of subsistence; or, in other words, that the value of labour power is the value of the means of subsistence necessary for the maintenance of the owner of labour power. But labour power only realises itself through its exercise; it only takes an active form in work. Thereby, however, a definite amount of human muscle, nerve, brain, etc., is expended, and these expenditures have to be made good. Increased expenditure demands a larger income.² The owner of labour power, having worked to-day, must be able to-morrow to repeat the process under the same conditions as to energy and health. Consequently, the amount of the means of subsistence must be sufficient to maintain the working individual as a working individual in his normal state of life. But the natural wants, such as food, clothing,

commodity which is his own property, and for this reason his labour takes on the form of wage labour. Moreover, it is only from that moment that the products of labour universally assume the form of commodities.

¹ "The value or worth of a man, is as of all other things, his price—that is to say so much as would be given for the use of his power." Thomas Hobbes, *Leviathan*, in *Works*, Moleworth's edition, London, 1839-1844, vol. III, p. 76.

² For this reason the Roman "villicus", as overseer of the agricultural slaves, received "more meagre fare than working slaves, because his work was lighter". Mommsen, *Römische Geschichte*, 1856, p. 210.

shelter, food, etc., differ from country to country in accordance with variations in climatic and other natural conditions. On the other hand, the comprehensiveness of what are called "needs", and the methods of their satisfaction, are likewise historical products, depending in large measure upon the stage of civilisation a country has reached; and depending, moreover, to a very considerable extent, upon under what conditions, and therefore with what habits and claims, the class of free workers has come into existence.¹ Thus the value of labour power includes, in contradistinction to the value of other commodities, a historical and a moral factor. Still, for any specific country, in any specific epoch, the average comprehensiveness of the necessities of life may be regarded as a fixed quantity.

The owner of labour power is mortal. Consequently, if he is to be perennially present in the market, as is essential to the continuous transformation of money into capital, the seller of labour power must perpetuate himself "in the way that every living individual perpetuates himself, by procreation."² The labour power withdrawn from the market by wear and tear and by death must be continually replaced by at least an equal quantity of new labour power. Hence the sum total of the means of subsistence necessary for the production of labour power, includes the means of subsistence of those who will replace labour power, that is to say the worker's children. Thus it is that this race of peculiar commodity owners perpetuates itself in the commodity market.³ In order to modify human nature in such a way that human beings may acquire skill and handiness in a particular branch of industry, and may thus come to constitute an evolved and specific kind of labour power, a definite education or training is needed, and this, in turn, costs a larger or smaller sum of commodity equivalents. Such cost of training varies according as the labour power

¹ See *Overpopulation and its Remedy*, London, 1846, by W. T. Thornton.

² Petty.

³ Labour's "natural price . . . consists in such a quantity of necessaries and comforts of life, as, from the nature of the climate and the habits of the country, are necessary to support the labourer, and to enable him to rear such a family as may preserve, in the market, an undiminished supply of labour". R. Torrens, *An Essay on the External Corn Trade*, London, 1829, p. 62.—The word "labour" is here incorrectly used for "labour power".

is more or less highly skilled. Costs of training (which are infinitesimal as far as ordinary labour power is concerned) must also be included among the elements of value expended for the production of labour power.

Thus the value of labour power is reduced to the value of a definite amount of the means of subsistence. Consequently, its value varies with variations in the value of the means of subsistence, that is to say with variations in the amount of labour time requisite for their production.

Some of the means of subsistence, such as food and fuel, are entirely consumed from day to day, and must be replaced from day to day. Others of the means of subsistence, such as clothing, furniture, etc., take a considerable time to wear out, and therefore need only be replaced at considerable intervals. Commodities of one kind, therefore, must be bought every day; those of another kind every week; those of another kind every quarter; and so on—payment being made at corresponding intervals. But no matter how expenditure for these purposes may be distributed throughout the year, the means for making the necessary payments throughout the year must be supplied by the average daily income. Let us suppose that the quantity of such commodities as are needed day by day for the production of labour power = A, that the quantity of such as are needed weekly = B, the quantity of such as are needed quarterly = C, and so on, then the daily average of these commodities = $\frac{365A + 52B + 4C + \text{etc.}}{365}$. If we suppose

that the amount of commodities necessary for such an average day embody six hours of social labour, then in a day's labour power there is embodied half a day's average social labour; or, in other words, half a working day is requisite for the daily production of labour power. This amount of labour requisite for its daily production constitutes the daily value of labour power, or the value of the labour power daily reproduced. If, moreover, we suppose that half a day's average social labour is represented by or incorporated in 3s., then 3s. is the price corresponding to the value of a day's labour power. Assuming that the owner of labour power offers it for 3s. a day, its sale price is equal to its value; and, in accordance with our presupposition, the owner of money, who is set upon transforming his 3s. into capital, pays this value.

The lowest limit, or the minimum of the value of labour power, is determined by the value of a quantity of commodities short of a daily supply of which the owner of labour power, the human individual, cannot renew his vital processes; it is determined, that is to say, by the value of the physically indispensable means of subsistence. If the price of labour power falls to this minimum, it falls below its value, seeing that labour power can on these terms only maintain and develop itself in a blighted form. But the value of every commodity is determined by the labour time requisite to produce it in a normal quality.

This method of determining the value of labour power arises out of the necessities of the case, and to complain that it is a brutal one is a piece of cheap sentimentalism. Rossi is but a sentimentalist when he says: "To conceive of capacity for labour as something which exists apart from the means of subsistence of labour during the process of production, is to conceive a phantom. When we speak of labour, or of capacity for labour, we mean both worker and means of subsistence, both worker and wages."¹ When we speak of capacity for labour we do not speak of labour, any more than when we speak of capacity for digestion we speak of digestion. Every one knows that the process of digestion needs other things besides a good stomach. One who speaks of capacity for labour does not think of it apart from the means of subsistence necessary for the production of the capacity for labour. Their value is expressed in the value of the capacity for labour. If this capacity for labour remains unsold, the worker derives no benefit from it; and he will then deplore the cruel natural necessity in accordance with which his capacity for labour requires a definite amount of means of subsistence for its production, and a continually renewed supply of these means of subsistence for its reproduction. He will then discover, with Siermondi, "that capacity for labour . . . is nothing unless it is sold".²

The peculiar nature of this specific commodity, labour power, entails that at the time when a bargain is struck between seller and buyer the use-value of the commodity has not yet been actually put into the buyer's hands. Its value, like that of any other commodity, was determined

¹ *Cours d'économie politique*, Brussels, 1846, p. 379.

² *Neuesauer preisler, etc.*, vol. I, p. 112.

before it entered into circulation, seeing that a definite amount of social labour was expended in its production; but its use-value is only realised in virtue of its subsequent exercise. The alienation of the labour power and its actual appropriation by the buyer, its employment as a use-value, are separated by an interval of time. Now, when we have to do with commodities whose formal alienation by the sale of their use-value is not simultaneous with actual delivery to the buyer, the buyer's money functions chiefly as means of payment.¹ In countries where the capitalist method of production has become established, labour power is not paid for until it has functioned throughout the period specified in the contract; not, for instance, until the end of the week. Everywhere, therefore, the worker advances to the capitalist the use-value of his labour power; the seller of labour power allows the buyer to consume its use-value before the seller gets the price; everywhere the worker gives credit to the capitalist. That this credit is not a mere fiction we may learn, not only from the occasional loss of wages when a capitalist goes bankrupt,² but also from the study of more lasting consequences.³ Nevertheless,

¹ "All labour is paid after it has ceased." *An Inquiry into Some Principles respecting the Nature of Demand, etc.*, p. 104.—"Commercial credit had to begin when the manual worker, the first artificer of production, became able, thanks to his savings, to wait for his wages until the end of the week, the fortnight, the month, the quarter, etc." Charles Gossé, *Des systèmes de l'économie politique*, second edition, 1811, vol. I, p. 110.

² "The worker lends his industry," writes Storch. But he is shrewd enough to add that the worker "rises nothing, beyond the loss of his wages. . . . The worker does not hand over anything material." *Cours d'économie politique*, St. Petersburg edition, 1812, vol. II, p. 37.

³ Here is an instance. In London there are two kinds of bakers, the "full-priced" bakers, who sell bread at its full value, and the "under-sellers," who sell it below its value. The latter form more than three-fourths of the total number of bakers. (See p. XXXII in H. S. Trevelyan's *Official Report concerning Grimeston complained of by the Journeymen Bakers, etc.*, London, 1862.) Almost without exception, the under-sellers sell bread which is adulterated in various ways by the admixture of alum, soap, pearl-ash, chalk, Derbyshire stone-dust, and such like pleasant, nutritive, and wholesome ingredients (see the before-mentioned Blue Book; also the report of the committee of 1835 on the adulteration of bread; and also Dr. Hassell's *Adulterations detected*, second edition, London, 1862). Before the committee of 1835, Sir John Gordon stated that "in consequence of these adulterations, the poor man, who lives on two

whether money is used as means of purchase or as means of payment, this makes no difference to the nature of the exchange of commodities. The price of labour power is fixed by the bargain, although the labour power is not realised until after the bargain is struck. (The same thing happens when a house is rented, for the tenant only realises the advantage of his bargain by degrees.) The labour power has been sold, though it is not paid for until later. We shall, therefore, be helped to a clear understanding of the nature of the relation by assuming, for the nonce, that the owner of the labour power receives the stipulated price at the moment when he sells it.

We now know how the value paid by the owner of money to the owner of this peculiar commodity, labour power, is determined. The use-value which the owner of money

pounds of bread a day, does not now get one fourth part of nourishing matter, let alone the deleterious effects on his own health". According to Treaschere (*op. cit.*, p. XLVIII), the reason why so many of the working class, though well aware of the adulteration, nevertheless accept the alien, stone-dust, etc., as part of what is paid for as bread is that they find it "a matter of necessity to take from their baker or from the chandler's shop such bread as they choose to supply". Since the workers are not paid their wages until the end of the working week, they in their turn are unable "to pay for the bread consumed by their families, during the week, before the end of the week"; and, Treaschere adds, on the evidence of witnesses, "It is notorious that bread composed of these mixtures, is made expressly for sale in this manner". In many English agricultural districts, and more often still in similar districts of Scotland, wages are paid fortnightly and even monthly. The intervals between the payments being so long, the agricultural labourer has to buy on credit. Consequently, he pays higher prices, and is in fact tied to the shop which gives him credit. Thus at Horningham in Wilt, where the wages are paid monthly, the flour that he could buy elsewhere at 2s. 10d. a stone costs him 2s. 4d. a stone. (*Stock Report as Public Health*, 1864, p. 264.) "The block printers of Paisley and Kilmarnock enforced by a strike fortnightly instead of monthly payment of wages." (*Reports of Inspectors of Factories*, October 31, 1853, p. 34.) As a further agreeable result of the system whereby workers give credit to capitalists, I may mention the method current in many English collieries, where the miner is not paid till the end of the month, but receives, meanwhile, sums on account from the capitalist, often in the form of goods, for which the miner is charged more than the market price. This is known as the truck system. "It is a common practice with the coalmasters to pay once a month, and advance cash to their workmen at the end of each intermediate week. The cash is given in the shop" [the "company shop", which belongs to the master]; "the men take it on one side and lay it out on the other." (*Children's Employment Commission, Third Report*, London, 1864, p. 36, n. 192.)

gets in exchange for his money is only manifested in the actual usufruct, in the process whereby the labour power is consumed. All the articles requisite for the labour process, such as raw material, etc., are bought by the owner of money in the commodity market, and paid for by him at their full price. The process whereby labour power is consumed is, at the same time, the process whereby commodities and surplus value are produced. The consumption of labour power, like the consumption of every other commodity, takes place outside the market, outside the sphere of circulation. Let us, therefore, leave this noisy region of the market, where all that goes on is done in full view of every one's eyes, where everything seems open and above board. We will follow the owner of money and the owner of labour power into the hidden foci of production, crossing the threshold of the portal above which is written: "No-admittance except on business". Here we shall discover, not only how capital produces, but also how it is itself produced. We shall at last discover the secret of the making of surplus value.

The sphere we are leaving, that of circulation or of the exchange of commodities, the sphere within whose confines the purchase and the sale of labour power are effected, is, in fact, a paradise of the rights of man. Here, liberty, equality, property, and Jeremy Bentham, are supreme. Liberty, because the buyer and seller of a commodity, such as labour power, buy and sell at their own sweet will. They enter into bargains as free individuals, equals before the law. The contract between them is the final outcome of the expression of their joint wills. Equality, because they enter into relations only as owners of commodities, and exchange equivalent for equivalent. Property, because each of them disposes exclusively of his own. Jeremy Bentham, because each of the pair is only concerned with his own interest. The power which brings them together, which makes them enter into relation one with another, is self-interest, and nothing more. Every one for himself alone, no one with any concern for another. Thanks to this, owing to the prestablished harmony of things, or under the auspices of an allwise providence, they work together for their mutual advantage, for the commonweal, on behalf of the common interest of them all.

As we quit this sphere of simple circulation or of the

exchange of commodities, which provides the common or garden free trader with his views and ideas, and with the standard by which he judges a society based upon capital and wage labour, we seem to note a change in the physiognomy of our persons of the drama. The one who came to the market as the owner of money, leaves it striding forward as a capitalist; the one who came to the market as the owner of labour power, brings up the rear as a worker. One of them, self-important, self-satisfied, with a keen eye to business; the other, timid, reluctant, like a man who is bringing his own skin to market, and has nothing to expect but a tanning.

PART THREE

PRODUCTION OF ABSOLUTE SURPLUS VALUE

THE LABOUR PROCESS AND THE PROCESS OF
PRODUCING SURPLUS VALUE

I. THE LABOUR PROCESS.

THE use of labour power, is *labour*. The buyer of labour power consumes it by setting the seller of labour power to work. Thereby the latter becomes what he was before potentially, labour power in action, a *worker*. In order that his labour may be embodied in commodities, he must, above all, embody it in use-values, in articles capable of satisfying wants of one kind or another. Hence what the capitalist sets the worker to produce is some particular use-value, some specified article. The production of use-values, of goods, is not affected in respect of its general nature by the fact that it is undertaken for a capitalist and under his control. In the first instance, therefore, we must consider the labour process apart from the particular form it may assume under particular social conditions.

Primarily, labour is a process going on between man and nature, a process in which man, through his own activity, initiates, regulates, and controls the material reactions between himself and nature. He confronts nature as one of her own forces, setting in motion arms and legs, head and hands, in order to appropriate nature's productions in a form suitable to his own wants. By thus acting on the external world and changing it, he at the same time changes his own nature. He develops the potentialities that slumber within him, and subjects these inner forces to his own control. We are not here concerned with those primitive and instinctive forms of labour which we share with other animals. A huge interval of time separates the days when human labour was still purely instinctive, from the days when the worker appears in the commodity market as seller of his own labour power. We have to consider labour in a form peculiar to the human species. A spider carries on operations resembling those of the weaver; and many a human architect is put to shame by the skill with which

a bee constructs her cell. But what from the very first distinguishes the most incompetent architect from the best of bees, is that the architect has built a cell in his head before he constructs it in wax. The labour process ends in the creation of something which, when the process began, already existed in the worker's imagination, already existed in an ideal form. What happens is, not merely that the worker brings about a change of form in natural objects; at the same time, in the nature that exists apart from himself, he realises his own purpose, the purpose which gives the law to his activities, the purpose to which he has to subordinate his own will. Nor is this subordination a momentary act. Apart from the exertion of his bodily organs, his purposive will, manifesting itself as attention, must be operative throughout the whole duration of the labour. Nay more. The less attractive he finds the work in itself, the less congenial the method of work, the less he enjoys it as something which gives scope to his bodily and mental powers—the more closely must he devote his attention to his task.

The elementary factors of the labour process are: first, purposive activity, or the labour itself; secondly, its subject matter; and thirdly, its instruments.

The soil (and this economically speaking includes water), in the virgin state in which it supplies man with the necessities of life, with ready-made means of subsistence,¹ forms, without any spontaneous activity on man's part, the general subject matter of human labour. All those things which labour merely separates from their immediate connexion with their environment, are the naturally given subject matter of labour. Take, for instance, fish, caught, and removed from their natural element, water; timber which falls to the ground in the primeval forest; ores broken away from outcrop lodes. If, on the other hand, the subject matter of labour has already been, so to say, filtered through previous labour, we speak of it as *raw material*. Take, for example, chance-found ores after they

¹ "The earth's spontaneous productions being in small quantity, and quite independent of man, appear, as it were, to be furnished by nature, in the same way as a small sum is given to a young man, in order to put him in a way of industry, and of making his fortune." James Stewart, *Principles of Political Economy*, Dublin edition, 1779, vol. I, p. 116.

have been washed. All raw material is the subject matter of labour; but we cannot say, conversely, that all the subject matter of labour is raw material. The subject matter of labour only becomes raw material when the substance in question has already been changed in some way by means of labour.

The instrument of labour is a thing, or a complex of things, which the worker interposes between himself and the subject matter of his labour, and one which serves as the conductor of his activity. He makes use of the mechanical, physical, and chemical properties of things as means of exerting power over other things, and in order to make these other things subservient to his aims.¹ Leaving out of consideration the gathering of ready-made means of subsistence, such as fruits, for which purpose man's own bodily organs suffice him as the instruments of labour, the object of which the worker takes direct control is not the subject matter of labour but the instrument of labour. Thus nature becomes an instrument of his activities, an instrument with which he supplements his own bodily organs, adding a cubit and more to his stature, scripture notwithstanding. Just as the earth is his primitive larder, so, likewise, is it his primitive tool-house. For example, it supplies him with the stone he uses as a missile, or for grinding, pressing, and what not. The earth itself is an instrument of labour; but when used as such in agriculture it needs, in addition, a number of other instruments of labour; and agriculture presupposes a comparatively high development of labour power.² As soon as the labour process is moderately well developed, it needs elaborate instruments of labour. In the oldest of the caves that contain evidence of human habitation, we find stone tools and stone weapons. From the dawn of human history, man, in addition to making use of elaborated stones, pieces of

¹ "Reason is as cunning as she is powerful. The cunning of reason is mainly shown by the indirect activity through which, making objects act and react one against the other in accordance with their own nature, she is able, without direct interference in this process, nevertheless to guide things towards her own ends." Hegel, *Encyclopædia*, part I, *Logic*, Berlin, 1840, p. 361.

² Guilla. in his otherwise poetry work, *Traité de l'économie politique*, Paris, 1819, summarizes very aptly (in opposition to the physiocrats) the long series of labour processes which form the presuppositions to agriculture in the proper sense of the term.

wood, bones, and shells, turn to account the services of domesticated animals as instruments of labour—these beasts, tamed, modified, bred by human labour, being among the chief of the primitive instruments of labour.¹ The use and the fabrication of instruments of labour, though we find their first beginnings among certain other animal species, is specifically characteristic of the human labour process, and for that reason Benjamin Franklin defined man as "a toolmaking animal". The relics of the instruments of labour are of no less importance in the study of vanished socio-economic forms, than fossil bones are in the study of the organisation of extinct species. The various economic epochs are distinguished one from another, not by differences in what is actually made, so much as by differences in the instruments of labour.² Not only are the instruments of labour, tools, a standard whereby we can measure the development of human labour power; but they are also indicators of the social relations amid which labour was performed. Among the instruments of labour, those of a mechanical nature (which, taken as a whole, we may speak of as the osseous and muscular system of production) throw much more light upon the characteristics of any epoch of social production, than do those which, like pipes, tubes, baskets, pitchers, etc., serve only to hold the subject matter of labour (these we may describe, in general terms, as the vascular system of production). Such containers do not begin to play an important part until the chemical industries come into being.³

In a wider sense, we may include among the instruments of labour, in addition to those things which are used for directly transferring labour to its subject matter (and which, therefore, in one way or another, serve as con-

¹ Turgot, in his *Réflexions sur la formation et la distribution des richesses*, 1776, brings into strong relief the importance of domesticated animals in the early stages of civilisation.

² The least important commodities for the technological comparison of different epochs of production are articles of luxury.

³ Though historians have hitherto been little inclined to pay attention to the development of material production, which is the basis of all social life, and therefore of all real history, prehistoric times have always been classified in accordance with the results, not of so-called historical investigations, but of scientific investigations. They have been classified in accordance with the materials from which tools and weapons were made. That is why we speak of the stone age, the bronze age, and the iron age.

ductors of activity), all such objects as are necessary for carrying on the labour process. There are various things which do not enter directly into the labour process; and yet, without them, that process cannot go on, or cannot go on properly. The most general instrument of labour in this sense of the term is, once more, the earth, since it provides the worker with the platform for all his operations, and supplies a field for the employment of his activity. Among the instruments of labour that are the product of previous labour, and also belong to this class, may be mentioned workshops, canals, roads, and so on.

In the labour process, therefore, man's activity, with the help of the instruments of labour, brings about changes in the subject matter of labour, changes intentionally effected. The process disappears in the product. The product is a use-value, materially supplied by nature, and adapted to human wants by a change of form. The labour has become incorporated with the subject matter of labour. Labour has been materialised, and the subject matter of labour has been elaborated. That which in the labourer appeared as movement, now appears in the product in a resting phase, as "being" instead of "becoming". The worker has spun, and the product is his web.

If we regard the whole labour process from the outlook of its result, the product, then both the instrument of labour and the subject matter of labour assume the aspect of means of production,¹ and labour itself assumes the aspect of productive labour.²

Though a use-value issues from the labour process in the form of a product, other use-values, the products of earlier labour processes, enter into the present labour process as means of production. The use-value which is the product of one labour process, becomes means of production in another. Products, therefore, are not only results of the labour process, but at the same time conditions thereof.

With the exception of extractive industry (which finds

¹ No doubt it seems somewhat paradoxical to describe a fish which as yet is uncought as a means of production in the fishing industry. Still, no one has yet discovered how to catch fish in waters where there are none!

² This way of defining productive labour, of defining it from the outlook of the labour process alone, is by no means adequate for the capitalist form of production. (See below, p. 351.)

its subject matter ready-made in nature, as do mining, hunting, fishing, and agriculture when this is carried on in virgin soil), all branches of industry deal with a subject matter which has already filtered through earlier labour, is already a product of labour, a subject matter which we term raw material. Of this kind, for instance, are the seeds used in agriculture. Animals and plants, which people are apt to regard as natural products, may not merely be the products of last year's labour, but may, in their extant form, be the products of a transformation which has been going on through many generations, under human control and aided by human labour. Apart from such instances, the instruments of labour in general, tools, show, for the most part, very obvious traces of past labour.

Raw material may either form the main substance of a product, or may be a mere accessory to its production. An accessory material may be consumed by the instruments of labour, as coal is consumed by the steam-engine, lubricating oil by the wheel, hay by the draught beast or the beast of burden; or else it may be added to the raw material in order to bring about a change in the latter, as chlorine is added to unbleached linen, carbon to iron, dyestuffs to wool; or, again, it may help in the carrying on of the work, as do the substances used for lighting and heating a workshop. In the chemical industries, the distinction between principal substance and accessory vanishes, seeing that not one of the raw materials utilized in these industries reappears as the substance of the product.¹

Since everything has numerous properties, and is therefore capable of being turned to useful account in various ways, the same product may form the raw material of very different labour processes. Wheat, for instance, is raw material for the miller, the maker of starch, the distiller of whisky, the cattle breeder, etc.; in the form of seed, it becomes the raw material for its own production. In the mining industry, coal is both a product and a means of production.

A product may serve in a labour process both as an instrument of labour and as a raw material. Consider, for instance, the fattening of cattle, where the beast is the

¹ Storch calls true raw materials "matters", and accessories "material"; Charbonnier describes accessories as "instrumental matters".

raw material, and is at the same time an instrument for the production of manure.

A product which has a form ready for immediate consumption, can nevertheless become the raw material for the making of some other product, as grapes do when they become the raw material of wine. On the other hand, labour may give us its product in a form which is only suitable for use as a raw material; this applies to raw cotton, yarn, etc. Such material, though itself a product, may have to go through a whole series of different processes. In each of these it serves, under perpetually changing forms, as raw material, until the last process of the series leaves it as a finished product, ready for individual consumption, or for use as an instrument of labour.

We see, therefore, that the question whether a use-value is raw material, instrument of labour, or product, depends wholly upon its specific function in the labour process, upon the place it occupies in that process. When the place in the labour process is changed, the use-value in question must be classified anew.

Whenever, therefore, a product enters as means of production into a new labour process, it forfeits its character as a product, and becomes nothing more than a factor in the process. A spinner regards spindles as merely the instruments with which he spins; and he regards flax as merely the subject matter of his work of spinning. Certainly, no one man can spin without spinning material and spindles. The preexistence of these is assumed when the work of spinning begins. But to the spinner it is a matter of no moment that flax and spindles are the products of previous labour; just as to a stomach engaged in the act of digestion it is a matter of indifference that bread is the product of the previous labour of the tiller of the soil, the miller, the baker, etc. We find, indeed, that when, during a labour process, the means of production succeed in calling attention to their characteristics as the products of previous labour, it is by their defects that they do so. When a man has to use a blunt knife, he is continually being reminded of the cutler who made it; when a sempstress has to use thread which is continually breaking, she cannot forget the spinner. But, these defects apart, in the finished product the labour by means of which it has acquired its useful qualities has apparently vanished.

A machine which does not serve the purposes of labour is useless. Besides, it falls a prey to the destructive working of natural forces. Iron rots. Wood rots. Cotton yarn which is not used either for weaving or for making stockinette, is cotton wasted. Living labour must seize on these things, must rouse them from their death-like sleep, must change them from potential use-values into real and kinetic use-values. Bathed in the fire of labour, appropriated as embodied labour, and, as it were, animated for their functions in the labour process, they are, indeed, consumed, but they are consumed for a purpose, as formative elements of new use-values, new products, which are ready to enter into the process of individual consumption as means of subsistence, or to enter into a new labour process as means of production.

While, then, extant products are not merely the results of the labour process, but are also indispensable conditions of the labour process, we find, on the other hand, that the only way by which these products of past labour can be made to retain and to realise their character as use-values, is by incorporating them into the labour process, by bringing them into contact with living labour.

Labour uses up its material elements, its subject matter, and its instruments, consumes them; and it, too, therefore, is a process of consumption. Such productive consumption is distinguished from individual consumption by this, that the latter uses up products as means of subsistence for the living individual, whereas the former uses them as the means whereby alone labour, the labour power of the living individual, is enabled to act. The product of individual consumption, therefore, is the consumer himself; but the result of productive consumption is a product distinct from the consumer.

In so far, then, as its instruments and its subject matter are themselves products, labour consumes products in order to create products, or uses up products as the means whereby products are produced. But just as, primitively, the only participants in the labour process were man and the earth (existing independently of man); so, even now, we employ in the labour process certain means of production supplied us directly by nature, means of production which are not any kind of combination of natural substances with human labour.

The labour process, resolved into its simple elementary factors, is, as we have seen, purposive activity carried on for the production of use-values, for the fitting of natural substances to human wants; it is the general condition requisite for effecting an exchange of matter between man and nature; it is the condition perennially imposed by nature upon human life, and is therefore independent of the forms of social life—or, rather, is common to all social forms. It was superfluous, therefore, to represent the worker as existing in relation to other workers. It was enough to describe man and his work on one side, nature and her materials on the other. When we eat bread, its taste does not tell us who grew the wheat. So, likewise, when we study the labour process, it does not itself tell us under what conditions the process is carried on: whether under the lash of the overseer of slaves, or under the sharp eyes of the capitalist; whether a Cincinnatus is conducting the labour process by tilling his little farm, or whether a savage is slaughtering a wild beast with stones.*

Now let us return to our would-be capitalist. We left him just after he had bought in the open market all the essentials for a labour process: the material factors, or the means of production; and the personal factor, or the labour power. With expert knowledge, he has selected the means of production and the labour power best suited to his particular business, spinning, bootmaking, or whatever it may be. Now he sets himself to work upon the consumption of the commodity he has bought, the labour power; that is to say, he makes the worker who incorporates this labour power use up the means of production by labour. Of course the general nature of the labour process is not altered in any way because the worker engages in it on behalf of the capitalist instead of on his own behalf. Nor is the particular way in which boots are made or yarn is spun altered, primarily, by the fact that the capitalist has intervened at a certain stage of these operations. The capitalist has to

* Because of this undebated fact, Colonel Torres is able to perform the logical feat of discovering the origin of capital in the stone flung by a savage. "In the first stone which he flings at the wild animal he punishes, in the stick that he seizes to strike down the fruit which hangs above his reach, we see the appropriation of one article for the purpose of aiding in the acquisition of another, and thus discover the origin of capital." *An Essay on the Production of Wealth*, etc., pp. 70-71.

begin by taking labour power as he finds it in the market; and he must, therefore, be satisfied with labour as it exists in the period immediately preceding the rise of the capitalists. Changes in the method of production brought about by the subordination of labour to capital can only arise at a later stage, and cannot as yet be considered.

The labour process, regarded as the process whereby labour power is used up by the capitalist, has two remarkable characteristics.

First of all, the worker does his work under the control of the capitalist to whom his labour belongs. The capitalist takes good care that the work shall be done in a proper way, and that the means of production shall be suitably used. He takes care that none of the raw material shall be wasted, and that none of the instruments of labour shall be injured. These latter are only to be used up in so far as this is essential to the labour process.

In the second place, the product is the property of the capitalist, not that of the worker who functions as direct producer. Let us suppose that the capitalist pays for a day's labour at its value. The use of this labour power, like the use of any other commodity (such as a horse which is hired for the day), belongs to him for that day. One who has bought a commodity is entitled to use the commodity; and the owner of labour power can, in fact, only give the use-value of what he has sold by giving his labour. From the moment when he enters the capitalist's workshop, the use-value of his labour power, that is to say its use, his labour, belongs to the capitalist. By the purchase of labour power, the capitalist incorporates labour, as a living ferment, with the lifeless constituents of the product (which also belong to him). From his point of view, the labour process is only the consumption of the commodity, labour power, which he has bought, and which he can only consume by supplying it with means of production. The labour process is a process which takes place between things which the capitalist has bought, between things that have become his property. The outcome of this process, the product, therefore belongs to him, just as much as does the wine which is the product of a process of fermentation completed in his cellar.*

* "Products are appropriated before they are transformed into capital; this transformation does not withdraw them from such

2. THE PRODUCTION OF SURPLUS VALUE.

The product, which is the capitalist's property, is a use-value, such as yarn, boots, or what not. But although boots are, in a sense, the foundation of social progress, and although our capitalist is all for progress, he does not make boots for their own sake. One who produces commodities, certainly does not do so for the mere love of their use-values. He only produces use-values because, and in so far as, they are the material substrata, the depositories of exchange-value. Our capitalist has two objects in view. First of all, he wants to produce a use-value which has an exchange-value; wants to produce an article made to sell; to produce a commodity. In the second place, he wants to produce a commodity whose value will exceed the total of the values of the commodities used up in producing it; the total value of the means of production and the labour power for which, in the commodity market, he has advanced money. He does not want merely to produce a use-value, but to produce a commodity; not only to produce use-value, but value as well; not only value, but surplus value in addition.

Our present business is with the production of commodities, and hitherto, obviously, we have contemplated only one side of the process. Just as the commodity is itself a unity composed of use-value and value, so must the process whereby a commodity is produced be a unity of labour process and value-creating process.

appropriation." Chartier, *Riche et pauvre*, Paris, 1841, pp. 33-34. — "The proletarian, by selling his labour for a definite quantity of the necessaries of life, renounces all claims to a share in the product. The mode of appropriation of products remains the same as before; it is no way altered by the bargain we have mentioned. The product belongs exclusively to the capitalist who supplies the raw material and the necessaries of life; and this is a rigorous consequence of the law of appropriation, a law whose fundamental principle is the very opposite, namely, that every labourer has an exclusive right to the ownership of what he produces." *Ibid.* p. 38. — "When the labourers receive wages for their labour, . . . the capitalist is then the owner, not of the capital only" [read, "the means of production only"]. "but of the labour also. If what is paid as wages is included, as it certainly is, in the term capital, it is absurd to talk of labour separately from capital. The word capital as thus employed includes labour and capital both." James Mill, *Elements of Political Economy*, 1821, pp. 70-71.

Let us now, therefore, consider the process of production as a process for creating value.

We know that the value of every commodity is determined by the amount of labour materialised in its use-value; by the amount of labour time socially necessary for its production. This rule holds good for the product which accrues to our capitalist as a result of the labour process. To begin with, therefore, we must reckon up the labour objectified in the product.

We will suppose the product to be yarn.

The first thing required for the making of the yarn was the raw material, 10 lbs. of cotton, let us say. No elaborate enquiry as to the value of the cotton is needed, seeing that the capitalist has bought the raw material in the open market at its value, which we will suppose to be 10s. In the price of the cotton, the amount of labour requisite for its production is already represented in terms of average social labour. Let us further assume that the wear and tear of the spindle (for the purposes of this argument, "spindle" is a comprehensive term for all the instruments of labour used in the labour process) represent a value of 2s. If 24 hours' labour, or 2 working days, are needed to produce the quantity of gold represented by 12s., we have, to begin with, 2 days' labour already incorporated in the yarn.

We must not be misled by the fact that the cotton has assumed a new shape, and that some of the substance of the spindle has, owing to wear and tear, been lost to our ken. According to the general law of value, if the value of 40 lbs. of yarn equals the value of 40 lbs. of cotton plus the value of a whole spindle, if, that is to say, the same amount of working time is requisite to produce the commodities on either side of this equation, then 10 lbs. of yarn are an equivalent for 10 lbs. of cotton plus one-fourth of a spindle. In the case we are considering, we now have incorporated in the use-value yarn, the same amount of labour time that was previously incorporated in the cotton and the spindle. The value is just the same, no matter whether it manifests itself in the form of yarn, spindle, or cotton. The spindle and the cotton, instead of existing side by side, have, through the process of spinning, entered into combination. Their use forms have been changed, and they have become yarn. But their value is no more affected by

this, than it, by a simple exchange, instead of by the labour process, they had been transformed into an equivalent of yarn.

The labour time needed for the production of the cotton, the raw material of the yarn, is part of the labour time needed for the production of the yarn, and is therefore contained in the yarn. The same remark applies to the labour time requisite for the production of that fraction of the spindle whose wear and tear, or consumption, is indispensable to the process of spinning the cotton.¹

Hence, in determining the value of the yarn (this meaning, the value of the labour time necessary for its production), all the various labour processes carried on at different times and in different places necessary to produce the raw cotton and that portion of the spindle which has been used up, together with the labour time subsequently requisite for making yarn out of raw cotton and spindle, may be regarded as the various successive phases of one and the same labour process. All the labour incorporated in the yarn is past labour. It does not matter a jot that the labour requisite for the final stage of the process, the actual spinning, has only just been performed. If a definite quantity of labour, thirty working days let us say, is needed for the building of a house, it does not affect the sum total of the labour time embodied in the house that the thirtieth working day came twenty-nine days later than the first working day. The labour time incorporated in the raw material and in the instruments of labour can therefore be regarded as if it had merely been expended in an earlier stage of the spinning process, before the actual and final labour of spinning began.

The value of the means of production, the cotton and the spindle, which are expressed in the price of 12s., are, therefore, constituents of the value of the yarn, the value of the product.

Two conditions must, however, be fulfilled. First, the cotton and the spindle must actually have served for the production of a use-value. In the case we are considering, yarn must have come into existence out of them. Value can

¹ "Not only the labour applied immediately to commodities affects their value, but the labour also which is bestowed on the implements, tools, and buildings with which such labour is aided." Ricardo, *op. cit.*, p. 16.

be embodied in any use-value you please, but it must be embodied in a use-value of some kind. Secondly, we assume that only that amount of labour time which is necessary under the extant social conditions of production has actually been used up. If, therefore, only 1 lb. of cotton is necessary for the spinning of 1 lb. of yarn, then only 1 lb. of cotton must have been used up in the production of 1 lb. of yarn. The same thing applies to the spindle. If our capitalist should happen to be one with a fancy for using golden spindles instead of iron ones, still, in the value of the yarn spun in his establishment nothing more would count than the socially necessary labour time, this meaning the labour time necessary for the production of iron spindles.

We now know what portion of the value of the yarn consists of the means of production, of cotton and spindles. It amounts to 12s., or the value of two days' labour. Next we have to consider what amount of value is added to the cotton by the labour of the spinner who spins the yarn.

For our present purposes we must consider this labour from a new outlook, very different from that we had when we were considering the labour process. Then we were concerned with the purposive activity of transforming cotton into yarn. Then, other things being equal, the more purposive the work, the better the yarn. The labour of the spinner was specifically different from other kinds of productive work, and the difference showed itself both subjectively and objectively, in respect of the special aim of the spinning, the particular method of work, the special nature of the means of production, and the particular use-value of the product. Cotton and spindles are means for spinning, but are of no use at all for the making of rifled cannon. Nevertheless, in so far as the labour of the spinner is labour that creates value, in so far as it is a source of value, it is nowise different from the labour of the worker who bores cannon; and it is nowise different (this being a matter which touches us more closely at the moment) from the labour of the grower of the cotton and the labour of the maker of the spindle, the labours respectively incorporated in the means of production of the yarn. It is only because of this identity, that cotton planting, spindle making, and spinning, are able to constitute various parts (differing quantitatively but in no other way) of one and the same total value, the value of the yarn. We are

not concerned any longer with the quality, the nature, the specific character of the labour, but only with its quantity. This is simply a matter of calculation. We assume that the labour of spinning is ordinary labour, average social labour. We shall see later that the contrary assumption would make no difference.

During the labour process, labour is continually passing from a state of becoming into a state of being, is changing from a mode of motion into something that is objectified as matter. At the end of an hour, the movements of spinning have come to be represented by a definite quantity of yarn, a definite quantity of labour, a working hour, incorporated into the cotton. We say a working hour, this meaning the expenditure of the vital energies of the spinner during the period of one hour, for the special work of spinning only counts here as the expenditure of labour power in general; it does not count as the specific work of the spinner.

For the purposes of the present argument, it is of decisive importance that no more time shall be expended in transforming the cotton into yarn than is necessary under the given social conditions. If under normal, that is to say average, social conditions of production, a lbs. of cotton can, during one working hour, be transformed into b lbs. of yarn, then a day's labour of 12 hours does not count as a working day of 12 hours unless 12a lbs. of cotton have, during that day, been made into 12b lbs. of yarn. For the only labour time that counts, as far as the creation of value is concerned, is socially necessary labour time.

Not only the labour, but also the raw material and the product, assume a very different aspect from that which they had when we were regarding them merely in the labour process. For our present purpose, the raw material counts only as the absorbent of a definite quantity of labour. By this absorption of labour, the raw cotton is changed into yarn, labour power in the form of spinning being added to the raw cotton. But the product, the yarn, is now nothing more than a measure of the labour absorbed by the cotton. If in one hour $1\frac{1}{2}$ lbs. of cotton are spun, are transformed into 1½ lbs. of yarn, then 10 lbs. of yarn represent the absorption of 6 hours' labour. Definite quantities of product (quantities determined by experience) represent nothing more than definite quantities of labour, definite masses of congealed labour time. They are nothing

more than the embodiment of one hour, two hours, one day, etc., of social labour.

In our example, the labour is that of the spinner, the raw material is cotton, and the product is yarn; but these facts now concern us no more than it concerns us that the subject matter of labour is itself already a product, and therefore raw material. If the worker, instead of being a spinner, were a coalminer, the subject matter of his labour, the coal, would be something supplied ready-made by nature. Nevertheless, a definite quantity of extracted coal, one cwt., for instance, would represent a definite quantity of absorbed labour.

When the labour power was sold, we assumed that its value for one day was 3s., and that 6 hours' labour were incorporated in that sum. This means that 6 hours' labour are required to produce the average amount of the means of subsistence daily required by the worker. If, now, our spinner, by working for one hour, can transform $1\frac{1}{2}$ lbs. of cotton into 10 lbs. of yarn,* then, in 6 hours, 10 lbs. of cotton will be transformed into 10 lbs. of yarn. Hence, in the process of spinning, 10 lbs. of cotton will have absorbed 6 hours' labour. The same amount of labour time is represented in a piece of gold which has a value of 3s. By the spinning, therefore, the value of 3s. has been added to the cotton.

Let us now consider the total value of the product, the 10 lbs. of yarn. In this quantity of yarn, $2\frac{1}{2}$ working days have been embodied, 2 days being contained in the raw cotton and the spindle, and $\frac{1}{2}$ a day having been absorbed by the cotton during the process of spinning it into yarn. A gold value of 15s. contains this amount of labour time. The sum of 15s., therefore, will be an adequate price for the 10 lbs. of yarn, and the price of yarn per lb. will be 1s. 6d.

Our capitalist is non-phased. The value of the product is precisely equal to the value of the capital he advanced. There has been no expansion in the value that he advanced; there has been no creation of surplus value; there has been no transformation of money into capital. The price of the 10 lbs. of yarn is 15s., and 15s. have been spent in the commodity market for the formative elements of the product, for the factors of the labour process. The capitalist

* The figures in the text are arbitrary.

has laid out 10s. on raw cotton, 2s. on the amount of spindle that has been worn away, and 3s. upon labour power. The increased value of the yarn as compared with the value of the cotton does not help him, for the increase only represents the wear and tear of the spindle and the amount spent on labour power. No surplus value can ever arise out of such simple additions of preexisting values.⁸ These values are now all of them concentrated into one thing, but they were in like manner concentrated in the sum of 15s. before it was split up for the purchase of three different commodities.

In truth, there is nothing very strange about the result. The value of 1 lb. of yarn is 1s. 6d., and therefore, in the commodity market, our capitalist had to pay 15s. for 10 lbs. No matter whether a man buys his house ready-built, or has it built specially for him, the mode of acquisition will not affect the sum of money laid out for acquiring the house.

The capitalist, being of course loaded and primed with the maxims of vulgar economy, will perhaps tell us that he advanced his money in order to make more money out of it. We shall answer that the road to hell is paved with good intentions, and that he could quite well "intend" to make more money without entering the field of production at all.⁹ He breathes threatenings and slaughter. No one shall catch him unawares again. In future, he will buy commodities ready-made in the market instead of making them himself. But if all his brother capitalists do the same thing, where will he find any commodities in the market? He

⁸ Here we have the fundamental proposition upon which the doctrine of the physiocrats is based, the doctrine that no labour but agricultural labour is productive. Moreover, the physiocrats' argument is unanswerable for the orthodox economists. "This way of superadding to one thing the value of several others (for instance, of superadding to flax the cost of the weaver's maintenance), of superimposing, so to say, stratum by stratum, several values upon one, results in a proportional increase of the latter. . . . The term 'addition' is a very good one for the way in which the price of articles of handiwork is formed, for this is nothing else than the sum total of several values tied up and added together. Now, to add is not the same thing as to multiply." Morrier de la Rivière, *op. cit.*, p. 509.

⁹ For instance, in the years 1844 to 1847, he would have withdrawn some of his capital from productive enterprise in order to speculate in railway shares. Again, in the days of the American Civil War, he would have closed his factory and have turned his workers into the street, in order to gamble on the Liverpool cotton exchange.

cannot eat money. When we remind him of this, he tries persuasion. "Think how abstinent I have been. I might have had a high old time with my 25s. Instead of that I consumed the money productively, used it to make yarn." Well and good, and by way of reward he has the yarn, instead of pricks of conscience. As for playing the part of miser, he must not relapse into that, for we have seen that such asceticism leads nowhere. Besides, where there is nothing, even the king has no rights. No matter how meritorious the capitalist's abstinence may have been, there is nothing with which he can be remunerated for it, seeing that the value of the product which is the outcome of the labour process is merely equal to the sum total of the values of the commodities which have been used in producing it. He must content himself with the knowledge that virtue is its own reward. But he waxes wroth. "The yarn is of no use to me. I only produced it in order to sell it."—"Very well then, sell it. Or, simpler still, be content, for the future, to produce things only to satisfy your own wants. That is a recipe which your family doctor McCulloch has already urged upon you as a well-tryed remedy for the epidemic of overproduction." Thereupon our capitalist grows obstinate. "Can the worker," he asks, "produce commodities out of nothing? Did not I provide him with the materials by means of which alone his labour could be embodied? Since the greater part of society consists of such wastrels, have I not rendered society invaluable services with my means of production, my cotton, and my spindles; and have I not at the same time rendered invaluable service to the worker, whom I have supplied with the necessities of life? Am I to get nothing for these services?" Well, but what about the worker? "Did not the worker pay you service for service, by turning your cotton and spindles into yarn?" Besides, there is no question here of services.¹ A service is merely the useful effect of a use-

¹ "Make the most of thyself, deck thyself out! . . . But whoever takes more or better than he gives as a worker, and does no service but wrong to his neighbour, just as much as when he steals or robs. Not everything that is termed service and benefit, is really service and benefit to one's neighbour. An adulterous and an adulterer do one another great service and give one another great pleasure. A houseman does a criminal a great service by helping him to rob on the highway, and to pillage land and houses. The papists do our folk great service in that they do not drown them, burn them, murder

value, whether of a commodity or of labour.² But here we have to do with exchange-value. He paid the worker a value of 3s. The worker gave him an exact equivalent, value for value, by adding to the cotton a value of 3s. Our friend, hitherto so purseprond, suddenly assumes the unpretentious demeanour of one of his own workmen, and exclaims: "Have not I myself worked? Did not I do the work of superintendence? Did not I oversee the spinner? Is not this work, too, valuable?" His overlocker and his manager try to hide their smiles. Meanwhile, after a hearty laugh, he is his cheerful self once more. "True," he says, "I chanted the Litany to you. But for my own part, I do not care a tinker's curse for it. I leave all such flimflams to the professors of political economy, whom I pay for that sort of thing. For my own part, I am a practical man; and though, outside business hours, I may sometimes speak without thinking, in business I always know what's what."

Let us look into the matter more closely. The value of the day's labour power was 3s. because there was embodied in it half a day's labour, that is to say because the means of subsistence necessary every day for the production of labour power cost half a working day. But the past labour which is hidden away in the labour power, and the living labour which that labour power can render, are two very different things. The daily cost of maintenance of labour power, and the daily output of labour power, are two very different things. The former determines the exchange-value of labour power; the latter, its use-value. Though it be true that only half a day's labour is requisite to maintain the worker throughout the twenty-four hours of the day, this does not prevent his working for the whole working day of twelve hours. The value of labour power, and the value which that labour power creates in the labour process,

them one and all, or let them all rot in gold; but let some of them live, and are content merely to drive them out or to take from them what they have. The devil himself does his servants great and invaluable service. . . . In a word, the world is full of great, excellent, daily service and benediction." Martin Luther, *An die Pfarrer und wider den Wucher als prediges*, etc., Wittenberg, 1540.

² In *Zur Kritik der politischen Ökonomie*, p. 14, etc., I say: "It is not difficult to understand what 'service' the category 'service' must render to economists of the calibre of J. B. Say and R. Bastiat."

are, therefore, two completely different magnitudes. This difference in the values was what the capitalist had in mind when he bought the labour power. Of course it was essential that the labour power should have a useful quality, should be able to make yarn, or boots, or what not; for labour must be expended in a useful form if it is to produce value. But the really decisive point was that this commodity labour power had the specific use-value of being a source of value, of being able to produce more value than it itself had. That is the specific service which the capitalist expects from labour power. In his dealings with labour power, he acts in accordance with the eternal laws of the exchange of commodities. In fact, the seller of labour power, like the seller of any other commodity, realises its exchange-value and alienates its use-value. He cannot get the former without disposing of the latter. The use-value of labour power, the labour itself, does not belong to the seller of labour power any more than the use-value of oil that is sold belongs to the oilman who has sold it. The owner of money has paid for the value of a day's labour power, and to him therefore belongs the use-value of the labour during that day, a whole day's labour. It is true that the daily maintenance of the labour power costs only half a day's labour, and that nevertheless the labour power can work for an entire working day, with the result that the value which its use creates during a working day is twice the value of a day's labour power. So much the better for the purchaser, but it is nowise an injustice to the seller.

Our capitalist foresaw all this, and that was why he was so cheerful. In the workshop, the worker finds the means of production requisite, not merely for a 6-hour labour process, but for a 12-hour labour process. If 10 lbs. of cotton absorb 6 working hours, and were thereby transformed into 20 lbs. of yarn, then 20 lbs. of cotton will absorb 12 hours of labour, and will be transformed into 20 lbs. of yarn. Let us examine the product of this lengthened labour process. In the 20 lbs. of yarn, 5 working days have been objectified, 4 in the consumed cotton and fraction of spindle, and 1 absorbed by the cotton during the process of spinning. Well, the gold expression of 5 working days is 30s., or £1 10s. This, therefore, is the price of the 20 lbs. of yarn. Now, as before, 1 lb. of yarn costs 1s. 6d. But the total of the values used up in the process

of production amounts to 27s., whereas the value of the yarn amounts to 30s. The value of the product is one-ninth more than the values advanced to effect its production. As a result, 27s. have been transformed into 30s. A surplus value of 3s. has been added. The trick has at last been successful, money has been changed into capital.

All the conditions of the problem have been solved, and the laws of the exchange of commodities have not been infringed in any way whatever. Equivalent has been exchanged for equivalent. As buyer, the capitalist paid for every commodity its full value—the cotton, the spindles, the labour power. Then he did what every other purchaser of commodities does. He consumed their use-values. The process of consuming labour power, a process which was at the same time the process of producing the commodity, gave a product consisting of 20 lbs. of yarn having a value of 30s. Now the capitalist, who quitted the market as a buyer, comes back to it as a seller. He sells his yarn at 1s. 6d. a lb., not a silver more or less than its value. Nevertheless, he gets 3s. more out of circulation than he originally put into circulation. This metamorphosis, this conversion of money into capital, takes place both inside the sphere of circulation and outside it. It is effected in and by circulation, because it is determined by the purchase of labour power in the commodity market. It is effected outside circulation, because circulation only gives the primary impetus to the process of producing surplus value, a process which bears fruit elsewhere, in the sphere of production. Thus "everything is for the best in the best of all possible worlds".

By transforming money into commodities which form the material elements of a new product or serve as factors in the labour process, and by incorporating living labour power with their dead substance, the capitalist transforms value (past labour, objectified labour, dead labour) into capital, into self-expanding value, into a monster quick with life, which begins to "work" as if love were breeding in its body.

If we now compare the process of creating value and the process of creating surplus value, we see that the process of creating surplus value is merely the process of creating value prolonged beyond a certain point. If the process of creating value continues only up to the moment when the value of

labour power paid by the capitalist has been replaced by a new equivalent, we have nothing more than a simple process of creating value. But as soon as the process of creating value is prolonged beyond this moment, it has become a process of creating surplus value.

Now let us go on to compare the process of creating value with the labour process. The latter is useful work which produces use-values. From this outlook, the movement is regarded qualitatively. What we are concerned with is the special kind of the labour, its purpose, its content. But when we have to do with the process of creating value, we are regarding the labour process only in its quantitative aspect. We are concerned with nothing more than the time during which labour has to work, with the duration of the useful expenditure of labour power. Furthermore, the commodities which enter into the labour process, do not count any longer as the necessary adjuncts of labour power in the production of some specifically desired useful object. They count merely as definite quantities of objectified or embodied labour. It does not matter to us whether this labour is already embodied in the means of production, or whether it is superadded by labour power; the labour counts only in accordance with its duration. It consists of so many hours, days, or what not.

But it only counts in so far as it is labour time socially necessary for the production of the use-value. This implies a number of things. The labour power must function under normal conditions. If, under the working conditions that prevail in the society with which we are concerned, a power-driven spinning machine is the accepted instrument used in the labour of spinning, we must not give our worker an old-fashioned hand spinning wheel. Nor must we give him, instead of cotton of an average goodness, inferior cotton which will continually break. For if we did either of these things, the worker would need more than the socially necessary labour time for the production of a pound of yarn, but he would not convert this superfluous time into value or money. We have to remember, however, that the normal characteristics of the material factors of the labour process depend, not upon the worker, but upon the capitalist. Another essential condition is that the labour power itself should have the normal character. In any particular craft, it must have the prevailing average of

skill, handiness, and quickness. In the labour market, our capitalist has bought labour power of normal quality. Furthermore, labour power must work with the average intensity that is customary in the particular society with which we are concerned. The capitalist is as careful to see that there shall be no slacking as he is to see that there shall be no wasted moments. He has bought the use of labour power for a definite period, and does not want to be cheated out of his rights. Finally (and this is a matter as to which our capitalist has a penal code of his own), there must be no waste of raw materials, and no undue wear and tear of the instruments of labour, for either the one or the other would involve the expenditure of excessive amounts of embodied labour—expenditure which would not pay, which would not be incorporated in the product or enter into its value.*

* This is one of the circumstances that make production by slave labour so costly a process. To use an expressive phrase of the ancients, the slave is merely a vocal instrument, distinguished only as vocal from the beast as semivocal instrument, and from the inanimate tool as dumb instrument. But he himself is careful to let both beast and tool know that he is of a different order from them, that he is a man. He has the self-satisfaction of convincing himself that he is different, by abusing the beast and damaging the tool. Consequently, it is a universal principle in production by slave labour that none but the roughest and heaviest implements shall be used, such tools as are difficult to damage owing to their sheer clumsiness. In some of the slave States of the American Union, those bordering on the Gulf of Mexico, down to the outbreak of the Civil War the only ploughs used were constructed upon an old Chinese model, ploughs which burrowed into the soil like a pig or a mole, but did not cut a furrow and turn the earth over. In this connection see J. E. Cairnes, *The Slave Power*, London, 1862, pp. 41-42. Again, in *A Journey in the Seaboard States*, Olmsted writes: "I am here shown tools that no man in his senses, with us, would allow a labourer, for whom he was paying wages, to be encumbered with; and the excessive weight and clumsiness of which, I would judge, would make work at least ten per cent. greater than with those ordinarily used with us. And I am assured that, in the careless and clumsy way they must be used by the slaves, anything lighter or less rude could not be furnished them with good economy, and that such tools as we constantly give our labourers and had our profit in giving them, would not last out a day in a Virginia cornfield—much lighter and more free from stones though it be than ours. So, too, when I ask why mules are so universally substituted for horses on the farm, the first reason given, and confessedly the most conclusive one, is that horses cannot bear the treatment that they always must get from the negroes; horses are always seen branded or whipped by them, while mules will bear outgalling, or lose a meal or two now and then, and not be materially

When analysing the commodity, we discovered the difference between labour considered as producing use-value and labour considered as producing value. We now see that this difference resolves itself into a distinction between two aspects of the process of production.

Regarded as a unity of the labour process and the value-creating process, the process of production is a process for the production of commodities. Regarded as a unity of the labour process and the process of creating surplus value, the process of production is a process of capitalist production, is the capitalist form of commodity production.

We have already pointed out that, as far as the process of producing surplus value is concerned, it is a matter of no moment whether the labour appropriated by the capitalist is simple average social labour, or complex labour, skilled labour of a higher specific gravity than unskilled labour. The higher, more complex labour which counts as worth more than average social labour, is the manifestation of labour power in which higher costs of training have been incorporated, of labour power whose production has cost more labour time. That is why it has a higher value than simple labour power. The value of this labour power being greater, the labour power manifests itself in labour of a higher quality, and therefore, in a given space of time, becomes embodied in proportionally higher values. Still, no matter what the degree of difference between, let us say, the work of the spinner and the work of the jeweller, the portion whereby the jeweller merely replaces the value of his own labour power is not distinguished qualitatively in any way from the supplementary portion of labour whereby he creates surplus value. In the making of jewellery, just as in spinning, surplus value is only produced by a quantitative surplus of labour, by the prolongation of the same labour process—in one instance a process of making yarn, and in the other instance a process of making jewellery.¹

injured, and they do not take cold or get sick if neglected or over-worked. But I do not need to go further than to the window of the room in which I am writing, to see at almost any time treatment of cattle that would ensure the immediate discharge of the driver by almost any farmer owning there in the North."

¹ The difference between higher labour on the one hand, and simpler labour on the other, between "skilled" and "unskilled"

On the other hand in every process of creating value, skilled labour must be reduced to terms of average social labour, one day of skilled labour to x days of unskilled labour.¹ We shall therefore save ourselves the trouble of a needless operation, and shall simplify our analysis, by assuming that the labour of the worker employed by the capitalist is average unskilled social labour.

labour, is in part dependent upon fictions, or at least upon differences which have long ceased to be real, and only live on in tradition and convention; but in part upon the more helpless position of certain strata of the working class, owing to which they are less able than others to extract the value of their labour power. Chance conditions play to great a part here, that the two forms of labour sometimes change places. When, for instance, the physique of the working class has deteriorated, so that, comparatively speaking, the physical strength of the workers has been exhausted (as we find in all countries where capitalist production is well developed), the lower forms of labour, demanding great expenditure of muscle, are apt to be regarded as skilled, compared with much more delicate forms of labour, whereas these latter decline to the level of unskilled labour. Take, for example, the work of a bricklayer, which in England occupies a much higher level than that of a weaver of muslin. On the other hand, although the labour of a furrier cutter demands great bodily exertion and is at the same time unhealthy, yet it counts only as unskilled labour. Nor must we forget that what is called skilled labour does not occupy a large place in the field of national labour. Laing estimates that in England and Wales the "wellbeing of 21,500,000 persons depends on unskilled labour. If from the total population of 28,000,000 living at the time when he wrote, we deduct 1,000,000 for the "gentle population", 1,500,000 for paupers, vagrants, criminals, prostitutes, etc., and 4,450,000 for the middle class, there remains the above-mentioned 11,000,000. But in the middle class he includes persons who live on the interest of small investments, together with officials, men of letters, artists, schoolmasters, and the like; and, in order to swell the numbers of the working portion of the middle class, he includes, side by side with bankers, etc., the better paid factory operatives! Bricklayers, likewise, are numbered among them. See S. Laing, *National Distress*, etc., London, 1844—"The great class who have nothing to give for food but ordinary labour, are the great bulk of the people," James Mill, in the article "Colonies," *Supplement to the Encyclopædia Britannica*, 1831.

1 "Where reference is made to labour as a measure of value, it necessarily implies labour of one particular kind . . . the proportion which the other kinds bear to it being easily ascertained." *Outlines Political Economy*, London, 1852, pp. 28-29.

CONSTANT CAPITAL AND VARIABLE CAPITAL

THE various factors of the labour process contribute in varying degrees to the formation of the value of the product.

The worker adds new value to the subject matter of his labour by expending upon it a definite amount of additional labour, no matter what the specific character, the purpose, and the technical quality, of his labour may be. On the other hand, the values of the means of production consumed in the labour process reappear as constituents of the value of the product; as, for instance, the values of raw cotton and spindles reappear in the value of yarn. Thus the value of the means of production is preserved by its transference to the product. This transference takes place during the conversion of the means of production into the product; it occurs during the labour process. It is brought about by labour; but how?

The worker does not do two things at once: one thing in order, by his labour, to add value to the cotton; and another thing in order to preserve the old value of the cotton, or, which amounts to the same thing, in order to transfer the value of the cotton he is elaborating (and that of the spindle with which he works) to the product, the yarn. Instead, by the very act of adding new value, he preserves the old value. But, inasmuch as the addition of new value to the subject matter of labour, and the preservation of the old values in the product, are two distinct results, which the worker simultaneously achieves although he works only once and not twice while he is doing it, the twofold nature of the result must obviously be an outcome of the twofold nature of his work. In one and the same period of time he must, in one of his qualities, create value, and, in another of his qualities, preserve or transfer value.

In what way does every worker add labour time, and consequently value, to that upon which he is working? Obviously, he can only do this by working productively in a particular way; the spinner by spinning, the weaver by weaving, the smith by forging. By rendering possible the

addition of labour, and therefore new value, in a purposive way—as by spinning, weaving, or forging—the means of production, the cotton and the spindles, the yarn and the loom, the iron and the anvil, become the formative elements of a product, of a new use-value.¹ The old form of their use-value disappears, only to be incorporated in a new form of use-value. But, when we were considering the process of creating value, we saw that, in so far as a use-value is consumed for the purpose of producing a new use-value, the labour time that was originally necessary for producing the consumed use-value becomes part of the labour time necessary for the production of the new use-value, this meaning that the labour time in question is transferred from the consumed means of production to the new product. Thus the worker preserves the values of the consumed means of production, or transfers them to the product as constituents of its value, not in virtue of the addition of labour considered in the abstract, but in virtue of labour that has a specifically useful character, in virtue of the specific form of this supplementary labour. As such purposive productive activity (spinning, weaving, or forging), the labour is able, by its mere contact with the means of production, to raise them from the dead, to quicken them so that they become living factors of the labour process, to enter into combination with them in order to form products.

Only if a worker's specific kind of productive labour is spinning, can he transform cotton into yarn; only then can he transfer the values of cotton and spindles to the yarn. But if this same worker were to change his craft and become a joiner, he would continue to add value by his day's labour to the material upon which he was working. He therefore adds value simply through his work; not because it is a spinner's work or a joiner's work, but simply because it is social labour in the abstract; and he adds a specific quantity of value, not because his work has a specifically useful purpose, but because it has lasted for a specific time. Thus it is as the expenditure of human labour power in its abstract and general form, that the labour of the spinner adds new value to the values of cotton and spindles; whereas it is in its concrete and specifically useful

¹ "Labour gives a new creation for one extinguished." *An Essay on the Political Economy of Nations*, London, 1801, p. 13.

form as spinning, that his labour transfers the values of these means of production to the product and thus preserves their value in the product. That is why, in one and the same period of time, a twofold result is achieved.

By the purely quantitative addition of labour, new value is superadded; but in virtue of the quality of the labour that is superadded, the old values of the means of production are preserved in the product. This twofold effect of one and the same labour, a twofold effect which is the outcome of the twofold character of the labour, is made conspicuous by various phenomena.

Let us assume that a new invention enables a spinner to spin in 6 hours as much cotton as he was formerly able to spin in 36 hours. The energy of his labour, as a purposive, useful, productive activity, has increased sixfold. Its product is six times as great as before, 36 lbs. of yarn instead of 6. But the 36 lbs. of cotton now absorb only as much labour time as was previously absorbed by 6 lbs. By each pound of cotton, however, only one-sixth as much labour is absorbed under the new conditions, and therefore the value added by labour to each pound is only one-sixth of what it was under the old conditions. On the other hand, in the total product, in the 36 lbs. of yarn, the value transferred from the cotton is six times as great as before. By the 6 hours' spinning, the value of the raw material preserved, and transferred to the product, is six times as great as before, although only one-sixth of the amount of new value is added to each pound of the raw material as compared with what was added under the old conditions. This shows that the two qualities of labour in virtue of which, during the same undivided process, it preserves value on the one hand, and creates value on the other, are essentially different. The longer the time necessary to spin a given weight of cotton into yarn, the larger is the amount of new value added to the cotton; but the greater the weight of cotton spun in a given period of labour time, the larger is the amount of old value preserved in the new product.

Let us now assume that the productivity of spinning remains unchanged, that the spinner needs exactly the same amount of time as before to transform a pound of cotton into yarn. We will suppose, however, that the exchange-value of cotton has altered, that 1 lb. of cotton

costs only one-sixth of what it cost before, or costs six times as much as before. In either case the spinner will, during a given period, add the same amount of labour time, this meaning the same value, to the same amount of cotton; and in either case he will produce, in the same amount of time, the same amount of yarn. Nevertheless, the value which he transfers from the cotton to the yarn, to the product, will, in one case be one-sixth of what it was before and in the other case be six times as great as before. Similarly when the instruments of labour have become dearer or cheaper, while continuing to do the same amount of service in the labour process.

Again, if the technical conditions of the process of spinning remain unaltered, and if there is no change of value in the means of production, then, in a given period of time, the spinner will consume the same quantity of raw materials and will effect the wear and tear of the same amount of machinery as before, and the value of the means of production thus consumed will be unchanged. The value which he preserves in the product is always directly proportional to the new value which he adds. In a fortnight he adds twice as much labour as in a week, this meaning that he adds twice as much value; and, at the same time, he uses twice as much material, having twice as much value; and he effects the wear and tear of twice as much machinery, having twice as much value. Thus in a fortnight's product he preserves twice as much value as he preserves in a week's product. The conditions of production remaining unchanged, the more value the worker adds by fresh labour, the more value he preserves; yet he does not preserve more value because he adds more value, but because he adds the new value under conditions that remain unchanged, under conditions that are independent of his own labour.

Of course it may be said, in one sense, that the worker always preserves old values in the same proportion as he adds new values. No matter whether cotton rises in price from 1s. to 2s., or falls from 1s. to 6d., the worker will in one hour preserve in the product only half as much cotton value as he preserves in the product of two hours—however much the value of cotton may vary. If, further, the productivity of his own labour varies, either rising or falling, then, in one working hour, he will spin more cotton

or less cotton than before, and will therefore preserve more or less cotton value, as the case may be, in the product of one working hour. All the same, in two working hours, he will continue to preserve twice as much value as in one working hour.

Apart from its purely symbolical representation in tokens, value exists only in a use-value, in a thing. (Man himself, regarded as nothing more than the embodiment of labour power, is a natural object, a thing, though a living and conscious thing; and labour itself is the outward manifestation of labour power.) If, therefore, an article loses its utility, it loses its value as well. The reason why the means of production do not lose their value at the same time as they lose their use-value is that, in virtue of the labour process, their use-value has been transferred to the product, appearing there as a new use-value. Thus the use-value has not ceased to exist, but has only lost its original form. While it is essential that value should exist in the form of one use-value or another, it is of no moment whatever in which use-value it may exist—as we see from a study of the metamorphoses of commodities. Hence it follows that, in the labour process, the means of production transfer their value to the product only in so far as, along with their independent use-value, they lose also their exchange-value. All that they give up to the product is the value they themselves lose as means of production. But in this respect the various objective factors of the labour process behave differently one from another.

The coal used in generating steam disappears; so does the oil with which machinery is lubricated. Dyestuffs and other accessory materials also disappear, but they show themselves as qualities of the product. The raw material forms the essential substance of the product, but has changed its form. Thus raw materials and accessory substances lose the independent forms in which they entered the labour process as use-values. It is otherwise with the instruments of labour. Tools, machines, buildings, utensils, etc., only serve in the labour process as long as they retain their original forms, entering into that process from day to day in the same form as on the previous day. Just as during their life (during the labour process) they maintain the independent form in which they confront the product, so do they continue to retain that form after their death.

The corpses of machines, tools, factories, and workshops, etc., remain in existence apart from the products they help to create. If we consider the case of any such instrument of labour throughout the whole period of its service, from the day when it enters the locus of production to the day when it is scrapped, we see that during this period its use-value is fully consumed by labour, and that therefore its exchange-value has been wholly transferred to the product. If, for instance, a spinning machine lasts 10 years, and is then worn out, it has, during a labour process lasting 10 years, transferred the whole of its value to the product of those 10 years. The lifetime of a given instrument of labour is therefore spent in the incessant repetition of a larger or smaller number of the labour processes in which it is used. Its life may be compared with that of a human being. At the end of each day, every one of us is twenty-four hours nearer death. But we cannot tell from looking at any one how many days he has already died. In spite of this difficulty, life-insurance societies can draw trustworthy conclusions as to the average expectation of life, and can make a good profit out of their inferences. So, likewise, with the instruments of labour. We know from experience how long will be the average life of an instrument of labour, say a particular kind of machine. Let us suppose that its use-value in the labour process lasts only six days; then, on the average, it loses one-sixth of its use-value in each working day, and therefore transfers one-sixth of its value to the daily product. That is how the wear and tear of all instruments of labour is calculated. Thus do people reckon up how much use-value such instruments lose day by day, and how much value they transfer day by day to the product.

This makes it perfectly clear that an instrument of production can never transfer more value to a product than the value which it itself loses in the labour process through the destruction of its own use-value. If it had no value to lose, if it were not itself a product of human labour, it could not transfer any value to the product. It would help to create use-value without creating exchange-value. Of such a kind are all the means of production that are supplied by nature without human aid; the earth, wind, water, unextracted iron ores, timber in the primeval forest, and so on.

Another interesting phenomenon now presents itself. Let us suppose that a machine is worth £1,000 and that it wears out in 1,000 days. In this case, day by day one-thousandth of the value of the machine is transferred by it to its daily product. Though with daily diminishing vitality, the machine continues as a whole to take part in the labour process. We see, then, that one factor of the labour process, a certain means of production, enters as a whole into that process, while entering only in part into the process of creating value. The difference between the labour process and the process of creating value is here reflected in their material factors, inasmuch as the same means of production counts in the same process of production, on the one hand wholly as an element of the labour process, and on the other hand only to a fractional extent as a factor in the creation of value.²

* For our present purposes, we can ignore the question of repairs to the instruments of labour, to machinery, buildings, etc. A machine that is undergoing repair is no longer functioning as an instrument of labour, but as the subject matter of labour. Workers are not using it for the performance of their work, seeing that work is being done upon it in order to restore its use-value. For our purposes, such work of repair can always be regarded as included in the amount of labour necessary for the production of the instrument of labour. What we speak of in the text as wear and tear is such wear and tear as no doctor can cure, such wear and tear as gradually brings about death; "that kind of wear which cannot be repaired from time to time, and which, in the case of a knife, would ultimately reduce it to a state in which the owner would say of it, it is not worth a new blade". We have shown in the text that a machine takes part in every labour process as an integral machine, whereas in the process of creating value (which goes on simultaneously with the other) it takes part only bit by bit. The reader who bears this in mind will be in a position to understand what a confusion of ideas there is in the following quotation: "Mr. Ricardo says a portion of the labour of the engineer in making [stocking] machines" is contained, for example, in the value of a pair of stockings. "Yet the total labour that produced each single pair of stockings . . . includes the whole labour of the engineer, not a portion; for one machine makes many pairs, and none of these pairs could have been done without any part of the machine." *Observations on certain Partial Disputes in Political Economy, particularly relating to Value and to Demand and Supply*, London, 1848, p. 54.—The author, an exceptionally well-satisfied witness, is right in his confusion, and therefore in his correction. To this extent only, that neither Ricardo nor any other economist before or after has accurately distinguished the two aspects of labour, and still less, therefore, the part played by it under each of these aspects in the formation of value.

On the other hand, an instrument of production may take part as a whole in the creation of value, although it enters bit by bit into the labour process. Let us assume that, in the spinning of cotton, for every 115 lbs. of cotton spun, 15 lbs. are waste, producing no yarn, but only "devil's dust". Now, although this 15 % of waste is normal, is inseparable from the average elaboration of the cotton, the value of the 15 lbs. of cotton which does not become an element of the yarn enters into the value of yarn just as much as the value of the 100 lbs. which goes to form its actual substance. The use-value of 15 lbs. of raw cotton has to vanish into dust before 100 lbs. of yarn can be made. The perishing of this amount of cotton is, therefore, a necessary condition for the production of the yarn. For that very reason, it gives up its value to the yarn. The same thing applies to all the excrements of the labour process—in so far, at least, as these excrements are not used for the formation of new products [by-products] so as thereby to become new and independent use-values. Such a utilisation of what would otherwise be waste products can be seen, for example, in the big machine shops of Manchester, where large amounts of shavings and other iron debris, by-products of the working of titanic machines, are carted away in the evening to the iron foundry, to come back again in due course as pig iron.

Only in so far as during the labour process the means of production lose value in the form of their old use-values, do they transfer their value to the new form of the product. The maximum amount of the value they can lose in the labour process is obviously limited by the primary value they had when they entered the labour process, by the amount of labour time that was needed for their production. The means of production, therefore, can never add more value to the product than they themselves possess, independently of the labour process in which they play their part. No matter how useful a given kind of raw material, or a machine, or some other means of production, may be; let us suppose that it has cost £150 or 500 working days, it can never add to the aggregate product in whose making it plays a part more than £150. Its value is determined, not by the labour process into which it enters as means of production, but by the labour process out of which it issued as a product. In the labour process, it

serves only as a use-value, as a thing with useful qualities, and therefore it would not transfer any value to the product unless it itself had value before entering into the process.¹

When productive labour transforms the means of production into formative elements of a new product, the transference of value is accompanied by a transmigration of souls. The soul of the old body that is used up, passes into the newly-formed body. But this metempsychosis occurs behind the back, as it were, of the actual labour. The worker cannot add new labour, that is to say, he cannot create new value, without preserving the old values; for he must always add the labour in a specifically useful form, and he cannot add it in a useful form except by employing products as the means of production for a new product, and thus transferring the value of the former to the latter. It is, therefore, a gift of nature whereby labour power in operation, living labour, is able to preserve value by adding value—a gift of nature which costs the worker nothing, but is extremely advantageous to the capitalist, inasmuch as it preserves the preexistent value of his

¹ The reader will therefore be able to realise what nonsense J.B. Say writes when he attempts to account for the origin of surplus value (interest, profit, and rent) as the outcome of the productive services which the means of production (the earth, tools, leather, etc.) render in the labour process by means of their use-values. Herr Wilhelm Roemer, who is never weary of committing his apologetic fancies to paper, exclaims: "J.B. Say (*Traité*, vol. I, chap. IV) justly remarks that the value produced by an oil mill, after deduction of all costs, is something new, something quite different from the labour by which the oil mill was built." *Op. cit.*, p. 82, note.—Very true! The "oil" produced by the oil mill is something quite different from the labour expended in building the mill. When Herr Roemer speaks of value, he is thinking of such material as "oil", because "oil" has value whereas mineral oil "exists in nature" although in "comparatively small quantities"—a fact to which he apparently refers when he says: "Nature produces scarcely any exchange-value". According to Roemer, nature's attitude towards exchange-value is rather like that of the girl who excused herself for having an illegitimate child by saying it was "such a little one". The same "learned scientist" goes on to say: "Ricardo's school is in the habit of including capital under the head of labour as 'accumulated labour'. This is a blunder, seeing that the owner of capital, after all, does something more than merely create and preserve the same; for he abstrains from the enjoyment of it, and for this, e.g., he demands interest." *Op. cit.*—How free from blunders is this "anatomico-physiological method" of political economy, which is actually able to create "value" out of mere "desire"!

capital.¹ As long as trade is good, the capitalist is too much absorbed in money-grubbing to notice this gratuitous gift of nature. But when there are violent perturbations that interrupt the labour process, when there are crises, he becomes sensitively aware of it.²

As regards the means of production, what is really consumed in them is their use-value, through the consumption of which labour makes products. In fact, their value is not consumed,³ and therefore cannot be said to be reproduced. It is preserved, not by reason of any operation it itself undergoes in the labour process, but because the use-value wherein it primarily exists, disappears only to make its appearance in another use-value. The value of the means of production therefore "reappears" in the value of the product; but, to speak strictly, it is not "reproduced". What is produced is the new use-value in which the old exchange-value reappears.⁴

¹ "Of all the instruments of the farmer's trade, the labour of man . . . is that on which he has most to rely for the repayment of his capital. The other two—the working stock of the cattle, and the . . . carts, ploughs, spades, and so forth—without a given portion of the first, are nothing at all." Edmund Burke, *Thoughts and Details on Scarcity*, originally presented to the Rt. Hon. W. Pitt in the Month of November 1795. London, 1800, p. 10.

² In the "Times" of November 28, 1882, a factory owner whose mill employed 800 workers, and consumed, on the average, 150 bales of East Indian, or 150 bales of American cotton, explored the standing expenses of his factory when it was not working. He estimated them at £8,000 a year. Among them were numerous items with which we are not now concerned, such as rent, rates and taxes, insurance, salaries paid to manager, bookkeeper, engineers, and so on. He reckoned £150 for coal used to keep the place warm, and to run the machinery for a few minutes now and again. Further, he included the wages he had to pay to workers who must keep the machinery in good working order. Finally, he had to allow £1,200 for depreciation of plant, seeing that "the weather and the natural principle of decay do not suspend their operations because the steam-engines cease to revolve". He expressly declared that the allowance for depreciation, £1,200, was a very small one, because the machinery was already almost worn out.

³ "Productive consumption: where the consumption of a commodity is a part of the process of production. . . . In these instances there is no consumption of value." S. P. Newman, *op. cit.*, p. 296.

⁴ In an American compendium which has run through so many, perhaps, an twenty editions, we read: "It matters not in what form capital reappears." After a wordy enumeration of all possible ingredients of production whose value reappears in the product, the

It is otherwise with the subjective factor of the labour process, with labour power in action. While the labour, because it is purposive, transfers the value of the means of production to the product, and preserves that value, it never for a moment ceases to create supplementary value, new value. Let us suppose that the process of production is stopped at the moment when the worker has produced an equivalent for the value of his own labour power; let us suppose, for instance, that by 6 hours' labour he has added a value of 3s. This value is the excess of the value of the product over the value that is incorporated in the product as a transfer from the means of production. It is the only original amount of value formed during this process, the only portion of the value of the product which is actually produced by this particular labour process. Nevertheless, it serves merely to replace the sum of money advanced by the capitalist for the purchase of labour power, the sum of money which the worker himself spends upon the necessities of life. In relation to this expenditure of 3s., the new value of 3s. discloses itself as only a reproduction. But this amount of value is really reproduced, and not reproduced only to outward seeming, as the value of the means of production is reproduced. The substitution of one value for another, is here effected by the creation of new value.

Nevertheless, we already know that the labour process lasts beyond the moment when it has reproduced a bare equivalent for the value of labour power, and when this equivalent has been added to the subject matter of labour,

writer says in conclusion: "The various kinds of food, clothing, and shelter, necessary for the existence and comfort of the human being, are also changed. They are consumed from time to time and their value reappears, in that new vigour (imparted to his body and mind, forming fresh capital, to be employed again in the work of production." *F. Weyland*, op. cit., pp. 31-32.—To say nothing of all the other remarkable features of these statements, I may point out that what reappears in the renewed energy is not the price of the bread, but its blood-forming substances. On the other hand, what reappears as the value of the energy is not the means of subsistence, but the value of these means. The same means of subsistence would produce just as much muscle, bone, etc., if they cost only half as much as they do; in a word, they would produce just as much energy, but not energy having the same value. This confusion between "value" and "energy", coupled with our author's complacent vagueness, cover up an attempt (after all, a vain one) to throw out an explanation of surplus value as due to a mere reappearance of preexisting values.

Six hours of labour would suffice for this, but the labour process lasts, let us say, for twelve hours. The functioning of labour power, therefore, does not only reproduce the value of the labour power, but produces value over and above. Such surplus value represents the excess of the value of the product above the value of the elements consumed in the formation of the product, that is to say above the value of the means of production and the labour power.

By explaining the different parts played by the various factors of the labour process in the formation of the value of the product, we have, in fact, described the various functions characteristic of the different constituents of capital in the process whereby it expands its own value. The excess of the total value of the product over the aggregate value of its formative elements, is the excess of the expanded capital over the capital originally advanced. Means of production on the one hand, and labour power on the other, are nothing more than the various modes of existence that were assumed by the original capital value when it quitted its money form and was metamorphosed into the factors of the labour process.

Consequently, that part of the capital which is transformed into the means of production, that is to say into raw material, accessory substances, and instruments of labour, does not experience any change in magnitude of value during the process of production. For that reason I speak of it as the constant portion of capital, or, for short, as *constant capital*.

On the other hand, the part of capital that is transformed into labour power, undergoes a change of value during the process of production. It reproduces an equivalent for itself, and an excess over and above, a surplus value, which is variable in amount and can be larger or smaller. This portion of the capital, from being a constant magnitude, is incessantly changed into a variable magnitude. I therefore speak of this portion of capital as the variable portion of capital, or, for short, as *variable capital*. The same constituents of capital which, from the outlook of the labour process are distinguished as objective and subjective factors, respectively—as means of production on the one hand, and labour power on the other—are from the standpoint of the process of creating surplus value distinguished as constant capital and variable capital.

The notion of constant capital does not exclude the possibility of a change in the value of its constituents. Let us assume that a pound of cotton, costing 6*s.* yesterday, costs to-day, owing to a failure of the cotton crop, 1*s.* The old cotton, which is still being elaborated, was bought at 6*s.* a pound, but it adds to the product a value of 1*s.* a pound. Moreover, the cotton which has already been spun, and which is perhaps already circulating in the market as yarn, adds to the product twice as much value as it did before the rise in price. The reader will see, however, that these changes in value are independent of the increment of value added to the cotton in the process of spinning. If the old cotton, bought for 6*s.* a pound, had not entered into the labour process, it could to-day be sold for 1*s.* a pound instead of for 6*s.* Nay more, the fewer the processes the cotton has gone through, the more certainly can it be sold at this enhanced price. Consequently, when such changes in value occur, speculators prefer to gamble in materials on which the least possible amount of labour has been spent, to gamble in yarn rather than in cloth, and in cotton rather than in yarn. The change in value arises here out of the process which produces cotton, and out of the process in which cotton itself functions as means of production, and therefore as constant capital. It is true that the value of a commodity is determined by the amount of labour embodied in it, but this quantity is itself socially determined. If the amount of labour socially necessary for its production changes (and when there has been a bad harvest, the same amount of cotton represents a larger quantity of labour than when there has been a good harvest), this reacts upon that portion of the commodity produced under the old conditions, which counts always as an exceptional specimen of its kind,¹ seeing that the value of the commodity as a whole is always measured by the labour socially necessary, that is by the labour necessary under the social conditions prevailing at the present time.

Even as the value of the raw material may change, so also the value already incorporated in the instruments

¹ "All products of the same kind constitute, strictly speaking, one aggregate, whose price is determined by general considerations, and without regard to particular circumstances." *Le Troisième*, op. cit., p. 893.

of labour that serve in the process of production (machinery, etc.) may change, this affecting the portion of value which the instruments transmit to the product. If, for instance, owing to a new invention, machinery of the same kind can be reproduced with a lessened expenditure of labour, then the old machinery depreciates more or less in value, and therefore transmits a comparatively smaller amount of value to the product. But here, likewise, the change in value originates outside the process in which the machine is acting as a means of production. Once engaged in that process, the machine cannot transmit more value than it possesses apart from the process.

Just as no change in the value of the means of production can affect their character as constant capital (even though it may react upon them after they have entered into the labour process), so no change in the proportions between constant and variable capital can affect their functional difference. For instance, the technical conditions of the labour process may be so extensively metamorphosed that, where formerly ten workers with ten inexpensive tools elaborated a comparatively small amount of raw material, now one worker with an expensive machine elaborates one hundred times the amount. In this instance, the constant capital, the aggregate value of the means of production, will have been greatly increased, and the variable portion of the capital, the portion advanced for labour power, will have been greatly reduced. But such a change only affects the relative magnitude of constant and variable capital, only affects the proportions in accordance with which the total capital is divided into constant capital and variable capital; it does not affect the distinction between constant capital and variable capital.

CHAPTER SEVEN

RATE OF SURPLUS VALUE

1. DEGREE OF EXPLOITATION OF LABOUR POWER.

THE surplus value which a given capital, C , has generated in the process of production, or, in other words, the self-expansion of the value of the advanced capital C , presents itself to us primarily as the excess of the value of the product over the aggregate values of its constituent elements.

The capital C consists of two parts: a sum of money, c , advanced for the means of production; and another sum of money, v , spent on labour power. Hence, c represents the portion of value transformed into constant capital, and v the portion of value transformed into variable capital. Therefore, originally, $C = c + v$. For instance, £500 being the capital advanced, its components may be such that the £500 = £410 constant + £90 variable. When the process of production is finished, we get a commodity whose value = $(c + v) + s$ where s is the surplus value; or, taking our previous figures, the value of this commodity may be (£410 constant + £90 variable) + £90 surplus value. The original capital has now changed from C to C' , from £500 to £590. The difference between the two is s , or a surplus value of £90. Since the value of the constituent elements of the product is equal to the value of the advanced capital, it is mere tautology to say that the excess of the value of the product over the value of its constituent elements is equal to the expansion of the capital advanced, or to the surplus value produced.

Nevertheless this tautology needs closer examination. The two things compared are, the value of the product, and the value of the constituent elements consumed in the process of production. Now, we have seen that the portion of the constant capital which consists of the instruments of the labour process transfers to the product only a fraction of its value, whereas the remainder of that value continues to reside in those instruments, retain-

ing its old form. Since the latter plays no part in the creation of value, we can ignore it. To introduce it into the calculation would make no difference. Let us assume that $c = £410$, consisting of raw materials to the amount of £312, accessory substances to the amount of £44, and wear and tear of machinery to the amount of £54—the total value of the machinery employed being £1,054. Out of this latter sum, then, we are concerned only with the capital advanced for the purpose of turning out the product, the sum of £54 which is lost by wear and tear during the process, and is therefore transferred to the product. If we were to count in the £1,000 which continue to exist in their old form as steam-engine, etc., we should have to enter this item on both sides of the account, on the side of the value advanced and on the side of the value of the product,¹ and thus have as our items £1,500 and £1,590 respectively. The difference, the surplus value, would still be £90. We shall, therefore, when we speak of constant capital advanced for the production of value, always mean (unless the context shows otherwise) the value of the means of production actually consumed in the process, and that value alone.

This being agreed, let us go back to the formula $C = c + v$, which, as we saw, was transformed into $C' = (c + v) + s$, C becoming C' . We know that the value of the constant capital is transferred to, and merely reappears in, the product. The new value actually created in the process, the value produced or value product, is, therefore, different from the value of the product; it is not, as might seem to be the case at the first glance, $(c + v) + s$, or (£410 constant + £90 variable) + £90 surplus; but $(v + s)$, or (£90 variable + £90 surplus), not £590 but £180. If $c = 0$; if, in other words, there should be branches of industry in which the capitalist could dispense with all means of production made by previous labour, whether raw material, auxiliary substances, or instruments of labour; if (in addition to labour power) he should make use of nothing but materials supplied gratuitously by nature—then there would be no constant capital to transfer to the product. This component of the value of the product, that is to say

¹ "If we reckon the value of the fixed capital employed as a part of the advances, we must reckon the remaining value of such capital at the end of the year as a part of the annual returns." *Millies, Principles of Political Economy*, second edition, London, 1873, p. 209.

the £420 in our example, would be eliminated; but the sum of £180, the amount of new value created, or value produced, which includes £90 of surplus value, would remain just as great as if c represented the highest value imaginable. We should have $C = (c + v) = v$; and C' (the expanded capital) $= v + s$, and, therefore, C' minus $C = s$, as before. On the other hand, if $s = 0$, or if, in other words, the labour power whose value is advanced in the form of variable capital were only to produce its equivalent, we should have $C = c + v$, and C' (the value of the product) $= (c + v) + 0$, this meaning that $C = C'$. The capital advanced, would not, in that case, have undergone any expansion of value.

From what has gone before we know, in fact, that the surplus value arises exclusively out of the change in value which takes place in v , the portion of capital which has been transformed into labour power; we know, therefore, that $v + s = v + \Delta v$ (v plus an increment of v). But the real change in value, and the ratio in which the value changes, are obscured by the fact that, because the variable capital increases, there is also an increase in the total amount of capital advanced. This was £500, and now it has become £550. If, therefore, our analysis is to be an accurate one, we must completely ignore that part of the value of the product in which the constant capital reappears, this meaning that we must equate the constant capital to zero or make $c = 0$. This is merely the application of a mathematical rule always used when operating with variable and constant magnitudes, related to each other by the symbols of addition and subtraction only.

A further difficulty arises out of the original form of the variable capital. In the foregoing example, $C' =$ £420 constant capital + £90 variable capital, + £90 surplus value. But £90 comprises a definite, a constant magnitude, and it therefore seems absurd to treat this sum as a variable magnitude. In actual fact, however, the term £90 variable is here merely a symbol for the process through which this value passes. The portion of capital invested in the purchase of labour power is a definite amount of materialised labour, and is therefore a value having a constant magnitude, like the value of the labour power purchased. But, in the process of production, the place of this £90 is taken by labour power in action, dead labour power is replaced by

living labour power, a quiescent magnitude is replaced by a magnitude in a state of flux, a constant magnitude by a variable magnitude. The upshot is the reproduction of v plus an increment of v . From the outlook of capitalist production, the whole course of events is a process of self-movement on the part of the originally constant value which has been transformed into labour power. To this, what takes place and its result must be ascribed. If, therefore, such expressions as "£500 variable capital" and "so much self-expanding value", should appear contradictory, this is only because they disclose the contradiction immanent in capitalist production.

The equating of the constant capital to zero may seem strange at first sight. Yet the same thing is always being done in everyday life. If, for instance, we wish to calculate the amount of England's profit from the cotton industry, we begin by deducting the amounts paid for raw cotton to the United States, India, Egypt, and other countries. In other words, we equate to zero the value of the capital that merely reappears in the value of the product.

Of course the ratio of the surplus value, not only to the portion of capital out of which it directly arises and whose change in value it represents, but also to the sum total of the capital advanced, is, economically speaking, of very great importance. I shall discuss that question in detail when I come to Book Three. If one portion of the capital is to undergo self-expansion by being converted into labour power, another portion of the capital must be transformed into means of production. If the variable capital is to function, constant capital must be advanced in suitable proportions, in proportions which will vary in accordance with the technical character of the labour process with which we are concerned. But although, when we are conducting a chemical analysis, we have to use retorts and other containers, we ignore these utensils when we come to consider the results of the analysis. In so far as the creation of value and the change of value are contemplated in and by themselves (in their pure essence), the means of production (the material forms of constant capital), supply nothing more than the matter in which labour power in course of flux, labour power which creates value, can incorporate itself. The nature of this material is, therefore, a matter of indifference: it may be cotton, it

may be iron, or what not. The value of the material is likewise indifferent. The only important thing is that there should be a sufficiency of it to absorb whatever amount of labour has to be expended during the process of production. Given this quantity, its value may rise or may fall, or the substance may be valueless like the earth and the sea—still, the process of creating value and changing value will not be affected by these considerations.¹

In the first place, therefore, we equate the constant capital to zero. The advanced capital is consequently reduced from $c + v$ to v , and the value of the product, $(c + v) + s$, to the value produced, $v + s$. Assuming that the value produced is £150, which sum represents the labour expended during the entire process of production, we must subtract from this £90, representing the value of the variable capital, in order to ascertain the surplus value, which is £60. This sum of £60, or s , represents the absolute magnitude of the surplus value that has been produced. But its relative magnitude, or the percentage increase of the variable capital, is obviously determined by the ratio between the surplus value and the variable capital, and will therefore be expressed by the fraction $\frac{s}{v}$. In our example,

this ratio is expressed by the fraction $\frac{60}{90} = 100\%$. The relative increase in the value of the variable capital, or the relative magnitude of surplus value, I term the *rate of surplus value*.²

We have seen that during one part of the labour process the worker produces nothing more than the value of his labour power, this meaning the value of his necessary means of subsistence. Since his work as producer is done in a society where the social division of labour prevails,

¹ Lucretius says: "Out of nothing, nothing can be created," and this is self-evident. When we speak of the "creation of value", we do not mean "creation" in the strict sense of the term; we mean the transformation of labour power into labour. Labour power, for its part, is, above all, energy transferred to a human organism from nourishing matter.

² The term is coined in accordance with English usage, after the example of the terms "rate of profit", "rate of interest", etc. In Book Three we shall see that the rate of profit is easily understood when we know the laws of surplus value. If we approach the problem the other way about, both remains incomprehensible.

he does not produce the necessities of life for himself directly, but produces, in the form of some particular commodity, such as yarn, a value equal to the value of his means of subsistence, or to the value of the money with which he buys them. The portion of his working day spent in this way is larger or smaller according as the value of the average amount of the means of subsistence he needs daily is smaller or larger, according, that is to say, as the average daily labour time requisite for their production is longer or shorter. If, on the average, the value of his daily means of subsistence is the embodiment of six working hours, then, on the average, the worker will have to labour for six hours daily in order to produce this value. If he were not working for a capitalist, but on his own account, independently, then, other things being equal, he would have, on the average, to work for the same aliquot part of the day in order to produce the value of his labour power, and thus acquire the means of subsistence necessary for his own maintenance or persistent reproduction. Since, however, in that part of the working day in which he produces the daily value of labour power (i.e., let us say), he produces nothing more than an equivalent for the value of labour power which has already been paid by the capitalist,¹ since the new value he creates does nothing more than replace the value of the variable capital which has been advanced, this production of value would appear to be nothing more than reproduction. I therefore term that part of the working day in which such reproduction is effected, *necessary labour time*; and I term the labour expended during this period, *necessary labour*.² It is necessary for the worker, because it is independent of the social form of his labour. It is necessary for capital, and for the

¹ Note added by Friedrich Engels to the third edition: The author is here using the customary economic phraseology. The reader will remember, however, that on p. 262 he pointed out how in reality it is not the capitalist who makes an advance to the worker, but the worker who makes an advance to the capitalist.

² Hitherto, in the present work, I have used the term "necessary labour time" to denote the labour time socially necessary for the production of commodities generally. Henceforward I shall use the term also to denote the necessary labour time requisite for the production of the specific commodity labour power. The use of technical terms in varying senses is misleading, but there is no science in which it can be completely avoided. Consider, for instance, both higher mathematics and lower mathematics.

world of capital, because the continued existence of the worker forms their foundation.

The second period of the labour process, that in which the worker has overstepped the limits of necessary labour time, costs him labour, calls upon him for the expenditure of labour power, but it does not serve to create any value for him. It serves to create surplus value, which smiles upon the capitalist with all the charms of an entity created out of nothing. This part of the working day I term, *surplus labour time*; and all the labour expended in it I term, *surplus labour*. If we are to understand value in general, it is of supreme importance that we should learn to regard it as a mere congelation of labour time, as nothing more than materialised labour; and for the understanding of surplus value, it is just as important that we should learn to regard this as a mere congelation of surplus labour time, as nothing more than materialised surplus labour. What distinguishes the various economic types of society one from another (distinguishes, for instance, a society based upon slavery from a society based upon wage labour), is nothing other than the way in which surplus labour is extorted from the actual producer, from the worker.*

Since the value of the variable capital is equal to the value of the labour power which this variable capital buys, and since the value of this labour power determines the length of the necessary portion of the working day, while surplus value, for its part, is determined by the length of the surplus portion of the working day, it follows that the ratio between surplus value and variable capital is identical with

* Herr Wilhelm Theophilus Röscher has made a brilliant discovery. He has discovered that if, on the one hand, the formation of surplus value or surplus product, and the consequent accumulation, are nowadays due to the thrift of the capitalist, who therefore "makes us pay him interest"; on the other hand, "in the earliest stages of civilisation, it is the strong who compel the weak to economise". *Op. cit.*, p. 38.—What do they economise? Is it labour? Or is it superfluous wealth, which does not yet exist? Why do such men as Röscher try to account for the origin of surplus value in terms which are nothing more than a recapitulation of the capitalist's more or less plausible excuses for the appropriation of surplus value? In part it is because these writers are genuinely ignorant; but in part it is because they are apologists, because they shrink from a scientific analysis of value and surplus value, being afraid lest they should arrive at a result which might be extremely distasteful to constituted authority.

the ratio between surplus labour and necessary labour. In other words, the rate of surplus value, $\frac{s}{v} = \frac{\text{surplus labour}}{\text{necessary labour}}$

These two ratios $\frac{s}{c}$ and $\frac{\text{surplus labour}}{\text{necessary labour}}$, express the same thing in different ways: one of them in terms of materialised, embodied labour; and the other in terms of living labour, labour in a state of flux.

The rate of surplus value is, therefore, a precise expression for the degree of the exploitation of labour power by capital, or of the exploitation of the worker by the capitalist.*

We assumed that the value of the product was equal to (£40 constant capital + £90 variable capital) + £90 surplus value; and that the capital advanced was £300. Since the surplus value is £90, and the capital is £300, we should, according to the usual way of reckoning, deduce that the rate of surplus value (generally confounded with the rate of profit) has been 18 %, a rate so low that it could not fail to delight the hearts of Mr. Carey and others who are so fond of telling us that there is a harmony of interests between labour and capital. In actual fact, however, the rate of surplus value is not $\frac{s}{c}$, or $\frac{s}{c+v}$, but $\frac{s}{v}$. It is, therefore, not

$\frac{90}{300}$ but $\frac{90}{90}$, that is to say 100 %—more than five times as great as the ostensible degree of exploitation. Although in the case we are considering we do not know the absolute length of the working day, or the periodic subdivision of the labour process (into days, weeks, etc.), or the number of workers who are simultaneously activating the variable capital of £90—by its convertibility into $\frac{\text{surplus labour}}{\text{necessary labour}}$,

the rate of surplus value $\frac{s}{v}$ shows us accurately the ratio

* Although the rate of surplus value is a precise expression for the degree of exploitation of labour power, it is by no means an expression for the absolute amount of exploitation. For instance, if the necessary labour = 3 hours, and the surplus labour = 3 hours, the degree of exploitation is 100%. The amount of exploitation is here measured by 3 hours. If, on the other hand, the necessary labour = 6 hours and the surplus labour = 6 hours, the degree of exploitation is still 100%, whereas the actual amount of exploitation has increased 20%, namely from 3 hours to 6.

between the two constituents of the working day. The ratio is 100 %. We know, therefore, that the worker is working half of every day for himself, and the other half for the capitalist.

To put the matter concisely, the method of calculating the rate of surplus value is as follows. We take the total value of the product, and treat as non-existent that part of its value which merely represents the reappearance of the value of constant capital. What remains is the only value which has been actually created in the course of producing the commodity. The amount of surplus value being known, we have but to deduct it from this remainder to ascertain the variable capital. On the other hand, the variable capital being known, by the converse operation we can ascertain the surplus value. If both the amount of variable capital and the amount of surplus value are known, we have only to perform the concluding operation, only to calculate $\frac{s}{v}$, the ratio of the surplus value to the variable capital.

Simple though the method is, it will be well to give a few examples, so that the reader may gain practice in the application of the novel principles that are involved.

First of all, let us suppose that there is a spinning mill containing 10,000 mule spindles, spinning No. 32 yarn from American cotton, and turning out 1 lb. of yarn per spindle per week. We will assume the wastage to be 6 %. In these circumstances, 10,600 lbs. of cotton are elaborated week by week into 10,000 lbs. of yarn, with a wastage of 600 lbs. In April 1871, this cotton cost 7½d. per lb., so that, in round figures, the 10,600 lbs. of cotton cost £342. The 10,000 spindles, including roving machinery and the steam-engine, cost £1 per spindle, the total cost being therefore £10,000. As a further assumption, we will suppose that the wear and tear of these spindles is 10 %, or £1000, or, roughly, £20 per week. Let the rent of the factory buildings be £300, or, roughly, £6 per week. Coal we may reckon (for 100 indicated h.p. at 4 lbs. of coal per h.p. per hour during a 60 hour week and inclusive of that consumed in heating the mill) at 11 tons per week; at 8s. 6d. a ton, this amounts to about £4 10s. per week. Add gas, £1 per week; lubricating oil, etc., £4 10s. per week. Total cost of the above auxiliary materials, £10 per week. Consequently, £378

represents the constant portion of the value of the week's product. Wages, let us suppose, are £52 per week. The price of the yarn is 12½d. per lb., so that 10,000 lbs. of yarn will have a value of £510. The surplus value, therefore, in this case will be £510 - £430 = £80. Deducting the constant portion of the value of the product, which plays no part in the creation of value, we have £510 - £378 = £132, as the value created weekly. Of this, £52 represents variable capital, and £80 surplus value. The rate of surplus value is therefore $\frac{80}{52} = 153\frac{1}{4}\%$. In a working day of 10 hours

with average labour, the result is: necessary labour = 3½ hours, and surplus labour = 6½ hours.¹

Here is one more example. Jacob gives the following calculation for the year 1813. Though some of the items have been adjusted for various purposes, the table is sufficiently accurate for our needs. The price of wheat is assumed to be 8s. a quarter, and the average yield per acre to be 22 bushels, so that the acre would grow wheat to the value of £11.

Items per Acre.					
	£	s.	d.		£ s. d.
Seed	1	9	0	Tithes, rates,	
Manure	2	10	0	and taxes....	1 1 0
Wages	3	10	0	Rent	1 8 0
				Farmer's profit	
				and interest..	1 2 0
Total	£7	9	0	Total	£3 11 0

Assuming that the price of the product is equal to its value, the surplus value is here allotted to the various heads of profit, interest, tithes, etc. We have nothing to do with these details; we simply add the items together, and the sum is a surplus value of £3 11s. 0d. The sum of £3 19s. 0d. paid for seed and manure is constant capital, and we ignore

¹ The data in the text were given me by a Manchester factory owner, and may be relied upon. In England, the horse-power of an engine was in former days calculated from the diameter of the cylinder; now the actual horse-power shown by the indicator is taken.

it. There remains the sum of £3 10s. od. which is the variable capital advanced, and we see that a new value of £3 10s. od. + £3 11s. od. has been produced in its place. Therefore $\frac{s}{v} = \frac{£3\ 11s.\ od.}{£3\ 10s.\ od.}$, giving a rate of surplus value of more than 100 %. The labourer spends more than half of the working day in producing surplus value which different persons, under various pretexts, share out among themselves.*

2. REPRESENTATION OF THE VALUE OF THE PRODUCT IN PROPORTIONAL PARTS OF THE PRODUCT.

Now let us come back to the example which showed us how the capitalist makes capital out of money. The necessary labour of his spinner was 6 hours, the surplus labour was also 6 hours, and the degree of exploitation was therefore 100 %.

The product of the 12-hour working day was 20 lbs. of yarn having a value of 30s. No less than $\frac{8}{10}$ of this yarn value, an amount of 24s., consisted of nothing more than the reappearing value of the means of production that were consumed (20 lbs. of cotton, 20s.; spindles, etc., 4s.), or consisted of constant capital. The remaining $\frac{2}{10}$ constitute the new value of 6s. created during the process of spinning, half of which replaces the advanced daily value of the labour power, constitutes the variable capital, while the other half constitutes a surplus value of 3s. The total value of the 20 lbs. of yarn is, therefore, made up as follows: 30s. value of yarn = 24s. const. + (3s. var. + 3s. sur. val.).

Since this total value is represented in the total product of 20 lbs. of yarn, it follows that the various component parts of the value must be represented in proportional parts of the product. If there is a yarn value of 30s. in 20 lbs. of yarn, then there must be $\frac{8}{10}$ of this value repre-

* The calculations in the text are intended merely as illustrations, and in them, therefore, it is assumed that prices are equal to values. In Book Three, we shall learn that even in the case of average prices no such simple assumption can be made.

sending the constant element of $24s.$ in $\frac{8}{10}$ of the product, or 16 lbs. of yarn. Of these 16 lbs., $13\frac{1}{2}$ lbs. represent the value of the raw material, the spun cotton, at $20s.$; and $2\frac{1}{2}$ lbs. represent the value of the consumed accessory substances and means of labour, spindles, etc., at $4s.$ Consequently, $13\frac{1}{2}$ lbs. of yarn represent the whole of the cotton used up in spinning the 20 lbs. of yarn. It is true that these $13\frac{1}{2}$ lbs. of yarn contain only $13\frac{1}{2}$ lbs. of cotton having a value of $13\frac{1}{2}s.$; but the supplementary value of $6\frac{1}{2}s.$ forms an equivalent for the cotton consumed in spinning the additional $6\frac{1}{2}$ lbs. of yarn. The effect is the same as if these $6\frac{1}{2}$ lbs. of yarn contained no cotton at all, and as if the whole 20 lbs. of cotton were concentrated into $13\frac{1}{2}$ lbs. of yarn. The latter weight, on the other hand, does not contain a jot of the value of the consumed accessory substances and instruments of labour, or of the new value created in the spinning process.

In like manner, an additional $2\frac{1}{2}$ lbs. of yarn, in which the remainder of the constant capital ($4s.$) is hidden away, represent nothing else than the value of the auxiliary materials and instruments of labour used up in producing the 20 lbs. of yarn. Although, therefore, $\frac{8}{10}$ of the product, or 16 lbs. of yarn, regarded as a use-value, as yarn, are just as much the products of the spinner's labour as the remainder of the product, they do not, from our present point of view, contain any labour expended during the process of spinning, for they have not absorbed any labour during that process. It is as if they had been transformed into yarn without being spun, and as if the assumption of the yarn form were pure make-believe. In actual fact, when the capitalist sells this quantity of yarn for $24s.$, and thus buys back his means of production, we see that these 16 lbs. of yarn are nothing more than raw cotton, spindles, coal, etc., decked out as yarn.

On the other hand, the remaining $\frac{2}{10}$ of the product, 4 lbs. of yarn, represent nothing else than the new value of $6s.$ produced in the 12 hours' process of spinning. Whatever amount of consumed raw materials and instruments of labour may be hidden away in them, has already

been extracted and incorporated into the first 16 lbs. of yarn. The spinner's labour incorporated in 20 lbs. of yarn is concentrated in $\frac{2}{10}$ of the product. It is as if the spinner had elaborated 4 lbs. of yarn in the air, or out of cotton and with the aid of spindles supplied by nature without any labour on the part of man—and therefore adding no value to the product.

Of the 4 lbs. of yarn in which the whole value produced by the day's process of spinning is thus incorporated, one half represents only the value that replaces the labour power that has been consumed, that is to say the variable capital amounting to 3s.; while the other 2 lbs. of yarn represents only the surplus value of 3s.

Since 12 hours of the spinner's labour are embodied in 6s., in the yarn value of 30s. there are embodied 60 working hours. They exist in 20 lbs. of yarn, of which $\frac{8}{10}$ or 16 lbs. are the materialisation of 48 of the working hours spent in the process of spinning, that is to say the materialisation of the labour embodied in the means of production of the yarn; while $\frac{2}{10}$, or 4 lbs. of yarn, on the other hand, are the materialisation of the 12 working hours actually expended in the process of spinning.

We saw previously that the yarn value is equal to the sum of the new value created in its production and the value already preexistent in its means of production. Now we see how the various component parts of the value of the product, parts that differed functionally or conceptually one from another, may be represented by corresponding proportional parts of the product itself.

Thus we can split up the product into different parts, of which one represents only the labour previously expended on the means of production, represents only the constant capital; while another part represents only the necessary labour spent during the process of production, represents only the variable capital; and yet another part represents only the surplus labour expended during the same process, represents only the surplus value. As we shall learn later when we come to apply the method to complicated and hitherto unsolved problems, this procedure is no less important than it is simple.

In the example just considered, we regarded the total product as the completed result of a 12-hour working day. We can, however, follow this total product through every stage of its production, while all the time representing the partial products, given off at the different stages, as functionally different parts of the final or total product.

In 12 hours, the spinner produces 20 lbs. of yarn. In 1 hour, therefore, he produces $1\frac{2}{3}$ lbs., and in 8 hours, $13\frac{1}{3}$ lbs., this being a partial product equal in value to all the cotton which is spun during one entire labour day. In like manner, the partial product of the next period of 1 hour and 36 minutes equals $2\frac{1}{3}$ lbs. of yarn, and therefore represents the value of the instruments of labour that are used up during the 12-hour working day. Similarly, in the following period of 1 hour and 12 minutes the spinner produces 2 lbs. of yarn = 2s., a product having a value equal to that of the whole value he creates in 6 hours of necessary labour. Finally, in the last period of 1 hour and 12 minutes he also produces 2 lbs. of yarn, whose value is equal to the surplus value created by him during half a day's labour. This way of reckoning serves the English factory owner for everyday use; it shows, he will say, that in the first eight hours, or in two-thirds of the working day, he gets back the value of his cotton; and so on for the remaining hours. The method is a sound one. It is, in fact, the first method given above, with this difference, that instead of being applied spatially, where the different parts of the product exist in the finished form side by side, it is applied in the realm of time, where they follow one another. Nevertheless, such a way of reckoning may be accompanied by extremely barbarian notions, especially in the heads of persons who have a practical interest in the process of making surplus value which is quite as strong as is their interest in misunderstanding that process in the theoretical field. Persons of this calibre may fancy that our spinner, for instance, during the first 8 hours of his working day, produces or replaces the value of the cotton; that in the next period of 1 hour and 36 minutes, he produces or replaces the value of the consumed instruments of labour; that in the next period of 1 hour and 12 minutes he produces or replaces the value of his wages; and that only the famous "last hour" is devoted to the production of surplus value for the factory owner. Thus the spinner has imposed on him the task of performing a

twofold miracle. Not only must he produce cotton, spindles, steam-engine, coal, oil, etc., at the same time that he spins with them; but simultaneously he must turn one working day into five. For, in the example we are considering, the production of the raw material and of the instruments of labour demands four working days of 12 hours each, and their transformation into yarn requires another such 12-hour working day. I will give an example, which has become famous, to show how avarice can lead to a belief in such miracles, and how there will never be a lack of sycophant doctrinaires eager to prove their reality.

3. SENIOR'S "LAST HOUR".

One fine morning in the year 1836, Nassau W. Senior, a noted stylist among English economists, was summoned from Oxford to Manchester. He taught economics in the former city, and was now to learn them in the latter. The factory owners chose him to fight on their behalf against the newly passed Factory Act, and also against the Ten Hours' agitation, which was continued on a wider scale after the passing of the Act. With their customary acuteness in practical matters, they had recognised that the learned professor "wanted a good deal of finishing". That was why they prescribed him a course of Manchester medicine. Senior, for his part, after coming to Manchester, embodied the lectures he received from the factory owners in the pamphlet entitled *Lectures on the Factory Act, as it affects the Cotton Manufacturers*, London, 1837. From this I select the subjoined edifying passage:

"Under the present law, no mill in which persons under 18 years of age are employed, . . . can be worked more than 11½ hours a day, that is 12 hours for 5 days in the week and 9 on Saturday. Now, the following analysis (1) will show that in a mill so worked, the whole net profit is derived from the last hour. I will suppose a manufacturer to invest £100,000:—£80,000 in his mill and machinery, and £20,000 in raw material and wages. The annual return of that mill, supposing the capital to be turned once a year and gross profits to be 15 % ought to be goods worth £115,000. . . . Of this £115,000, each of the 23½ hours of work produces $\frac{5}{115}$ or $\frac{1}{23}$. Of these twenty-three twenty-

thirds (constituting the whole £115,000), twenty, that is to say £100,000 out of the £115,000, simply replace the capital; one twenty-third (or £5000 out of the £115,000) makes up for the deterioration of the mill and machinery. The remaining two twenty-thirds, that is the last two of the twenty-three half hours of every day, produce the net profit of 10 %. If, therefore (prices remaining the same), the factory could be kept at work 13 hours instead of 11½, with an addition of about £2500 to the circulating capital the net profit would be more than doubled. On the other hand, if the hours of working were reduced by 1 hour per day (prices remaining the same), the net profit would be destroyed—if they were reduced by one hour and a half, even the gross profit would be destroyed.”

* Senior, *op. cit.*, pp. 12-13.—I will not trouble to comment upon certain curiosities in the above-quoted passage that are nothing to our purpose: for instance, the contention that the factory owners reckon as part of their profit (gross or net) the amount required to make good wear and tear of machinery, or, in other words, to replace a part of the capital. Nor need we concern ourselves as to the accuracy of the writer's figures. In *A Letter to Mr. Senior, etc.*, London, 1837, Leonard Horner showed that these figures were worth not a jot more than the so-called “analysis”. Horner was one of the Factory Inquiry Commissioners in 1832, and Inspector of factories (substantially, censor of factories) till 1839. He rendered invaluable service to the English working class, carrying on a lifelong contest, not only against the embittered factory owners, but also against the ministers of State, in whom the number of votes given by the factory owners in the Lower House was of more importance than was the number of hours worked by the “hands” in the mills.—Apart from errors of principle, Senior's statement is confused. What he really wanted to say was this: “The factory owner employs the worker daily for 11½ hours, or 23 half hours. The average working day consisting of 23 half hours, we may conceive the working year to consist of the same number of half hours (multiplied, of course, by the number of working days in each year). On this supposition, the 23 half hours of working time produce the annual product of £115,000; 1 half hour produces $\frac{1}{23} \times £115,000$; 20 half hours produce $\frac{20}{23} \times £115,000 = £100,000$, a sum which serves only to replace the capital advanced. There remain 3 half hours of working time, which produce $\frac{3}{23} \times £115,000 = £15,000$, this being the gross profit. Of these 3 half hours, 1 half hour produces $\frac{1}{23} \times £115,000 = £5000$, this serving only to replace the wear and tear of factory and machinery. The remaining 2 half hours of working time, that is to say the ‘last hour’, produces $\frac{2}{23} \times £115,000 = £10,000$, this being the net profit.” In the text,

And this is what our learned professor terms an "analysis"! If he put credence in the complaints of the factory owners, who declared that the workers frittered away the best hours of the day in the production, therefore in the reproduction or replacement, of the value of the buildings, the machinery, the cotton, the coal, etc., then the analysis was superfluous. His answer ought to have been: "Gentlemen, if you work your plant for 10 hours instead of 11½, then, other things being equal, the daily consumption of cotton, machinery, etc., will be reduced by 1½ hours. You gain as much as you lose. Your workpeople will in future spend 1½ hours less upon producing or replacing the capital that has been advanced."

If, on the other hand, he did not believe what they said, but, as an expert, considered an analysis necessary, he should, in a question concerned only with the relations of net profit to the length of the working day, above all have asked the factory owners not to lump together machinery and factory buildings, raw material and labour, in a miscellaneous way; but to be good enough to class, under one head, as constant capital, the capital invested in buildings, machinery, raw material, etc., and, under another head, the capital advanced upon wages. If he had then found that, in accordance with the calculation of the factory owners, the worker reproduced or replaced his wages in 2 half hours, he should have continued his analysis as follows:

"According to your figures, in the last hour but one, the worker produces his wages, and in the last hour of all produces your surplus value, or net profit. Now, since in equal periods he produces equal values, the product of the penultimate hour has the same value as the product of the last hour. Furthermore, he only produces value in so far as he expends labour, and the amount of his labour is measured by the labour time. According to your own data, this is 11½ hours per day. He spends part of these 11½ hours in the production or the replacement of his wages; and he spends the rest of his time in producing your net profit. He does nothing else in the whole of the working day. Since, however, on your own assumption, his wages and the amount

Senior transforms these remaining $\frac{1}{15}$ of the product into portions of the working day itself.

of surplus value yielded by him are values of equal magnitude, it is obvious that he must produce his wages in $5\frac{1}{2}$ hours and your net profit in another $5\frac{1}{2}$ hours. Inasmuch as, further, the value of the yarn produced in 2 hours is equal to the sum of the values of his wages and your net profit, the measure of the value of this yarn must be $11\frac{1}{2}$ working hours, the product of the penultimate hour being measured by $5\frac{1}{2}$ working hours and the product of the last hour by another $5\frac{1}{2}$ working hours. Now we come to a ticklish point, so you must pay strict attention. The penultimate working hour is an ordinary hour of working time, just like the first one. It is an ordinary working hour, neither more nor less. How, then, can the spinner in 1 working hour produce, in the shape of yarn, a value which represents $5\frac{1}{2}$ working hours? In actual fact, he does not perform any such miracle. What he produces as use-value in one working hour, is a definite amount of yarn. The value of this yarn is measured by $5\frac{1}{2}$ working hours, of which $4\frac{1}{2}$ hours are (without any complicity on his part) hidden away in the means of production consumed during that hour—in cotton, machinery, etc.—while the remaining 1 hour is added by the worker. Consequently, since his wages are produced in $5\frac{1}{2}$ hours, and the amount of yarn produced by 1 hour of spinning also embodies $5\frac{1}{2}$ working hours, there is no witchcraft in the result that the value created by his $5\frac{1}{2}$ hours' spinning is equal to the value of the products spun in 1 hour. You are altogether on the wrong track if you imagine that he wastes a single moment of his working day when he is reproducing or replacing the values of the cotton, the machinery, and so on. On the contrary, it is because his labour transforms the cotton and the spindles into yarn, it is because he spins, that the values of the cotton and the spindles transfer themselves to the yarn of their own accord. The transference depends upon the quality of his labour, not upon its quantity. It is true that in 1 hour he will transfer to the yarn more value, in the shape of cotton, than he will in $\frac{1}{2}$ an hour; but that is only because in 1 hour he spins more cotton than in $\frac{1}{2}$ an hour. You see, then, your assertion that the workman produces, in the penultimate hour, the value of his wages, and in the last hour the net profit, amounts to nothing more than this, that in yarn produced by him in any two working hours, whether they are the two first or

the two last hours of the working day, there are incorporated $11\frac{1}{2}$ working hours, just as many hours as there are in his whole working day. The assertion that, in the first $5\frac{1}{2}$ hours he produces the wages you pay him for his labour, and in the last $5\frac{1}{2}$ hours your net profit, is tantamount to this, that you pay him for the former, but not for the latter. I speak of the payment for 'labour', instead of payment for 'labour power', because I wish to use your own dialect. Well now, gentlemen, if you compare the working time you pay for, with the working time you do not pay for, you will find that they are to one another, as half a day is to half a day, this being 100 %, and a very pretty percentage indeed. Furthermore, there is no doubt whatever that if you make your 'hands' toil for 13 hours instead of $11\frac{1}{2}$, and if, as may be expected of you, you treat the work done in that extra $1\frac{1}{2}$ hours as pure surplus labour, then the surplus labour will be increased from $5\frac{1}{2}$ to $7\frac{1}{2}$ hours, and the rate of surplus value will therefore be increased from 100 % to $126\frac{1}{11}$ %. You are, therefore, far too sanguine when you believe that the addition of $1\frac{1}{2}$ hours to the working day will increase the rate of surplus value from 100 % to 200 % or even more; when you believe, in other words, that it will be 'more than double'. On the other hand (the human heart is a wonderful thing, especially when a man carries his heart in his purse), you take an absurdly pessimistic view when you are afraid that if the working day is reduced from $13\frac{1}{2}$ hours to $10\frac{1}{2}$, all your net profit will take wings to itself and fly away. Nothing of the kind will happen. Other things being equal, the surplus labour will fall from $5\frac{1}{2}$ hours to $4\frac{1}{2}$, which will still leave you a very substantial rate of surplus value, namely $83\frac{1}{3}$ %. The momentous 'last hour', about which you have babbled more nonsense than even the millionaires did about the day of judgment, is 'all bosh'. If you lose this last hour, it will not cost you your net profit, nor will it cost the boys and girls you employ their 'purity of mind'.¹

¹ Whereas Senior set himself to prove that the net profit of the factory owners, the existence of the English cotton industry, and England's predominant place in the world market, depended upon the "last hour of the working day"—Dr. Andrew Ure showed, on the other hand, that if children and young persons under 18 years of age, instead of being kept for the full 13 hours in the warm and pure moral atmosphere of the factory, were turned a whole hour earlier into the heathens and brutes of the outer world, they would, thanks to

"Whenever your own 'last hour' strikes in earnest, think

illness and vice, be deprived of the chance of immortal salvation. From 1848 onwards, the factory inspectors were never weary of twisting the masters with this 'last hour', this "momentous hour". First Mr. Howell, in his factory report under date May 31, 1855, writes: "Had the following ingenious calculation" [he goes on to quote Senior] 'been correct, every cotton factory in the United Kingdom would have been working at a loss since the year 1850.' *Reports of Inspectors of Factories for the half year ending April 30, 1855*, pp. 19-20.—In the year 1848, after the passing of the Ten Hours' Act, the masters of some flax-spinning mills dispersed through the countryside on the borders of Dorset and Somerset, brought pressure on their workpeople to sign a petition against the Act. One of the clauses of this petition ran as follows: "Your petitioners, as parents, conceive that an additional hour of leisure will tend more to demoralise the children than otherwise, believing that illness is the parent of vice." On this the factory inspectors' *Report* under date October 31, 1848, comments as follows (p. 104): "The atmosphere of the flax mills, in which the children of these virtuous and tender parents work, is so loaded with dust and fibre from the raw material, that it is exceptionally unpleasant to stand even 15 minutes in the spinning rooms; for you are unable to do so without the most painful sensation, owing to the eyes, the ears, the nostrils, and mouth, being immediately filled by the clouds of flax dust from which there is no escape. The labour itself, owing to the feverish haste of the machinery, demands unceasing application of skill and movement, under the control of a watchfulness that never tiring; and it seems somewhat hard, to let parents apply the term 'idling' to their own children, who, after allowing for meal times, are fettered for 10 whole hours to such an occupation, in such an atmosphere. . . . These children work longer than the labourers in the neighbouring villages. . . . Such cruel talk about 'illness and vice' ought to be branded as the purest cant and the most shameless hypocrisy. . . . That portion of the public, who, about 25 years ago, were struck by the assurance with which, under the sanction of high authority, it was publicly and most earnestly proclaimed, that the whole net profit of the manufacturer flows from the labour of the last hour, and that, therefore, the reduction of the working day by 1 hour would destroy his net profit; that portion of the public, we say, will hardly believe its own eyes when it now finds that the original discovery of the virtues of the 'last hour' has since been so far improved as to include morals as well as profit; so that, if the duration of the labour of children is reduced to a full 10 hours, their morals, together with the net profits of their employers, will vanish, both being dependent on this last, this fatal hour."—The report goes on to give some examples of the tricks, the artifices, the cajolery, the threats, and the falsifications they make use of, in order, first, to compel a few deluded workers to sign such petitions, and then to impose these petitions upon parliament as representative of the views of a whole branch of industry, or of whole counties. It is characteristic of the present condition of what is termed economic "science", that neither Senior himself, who subsequently (to his honour be it said) energetically

of the professor from Oxford. For the nonce, gentlemen, farewell, and may we meet again in a better world!"

It was somewhere about 1835 that Senior made his famous discovery of the "lost hour". On April 15, 1848, in the "Economist", James Wilson, one of the chief mandarins in the economic world, trumpeted the doctrine anew in a polemic against the Ten Hours' law.

4. SURPLUS PRODUCT.

The part of the product that represents the surplus value (in our example, $\frac{1}{10}$ of the 20 lbs. of yarn, that is to say 2 lbs. of yarn) I term surplus product. Just as the rate of surplus value is determined by its relation, not to the total capital advanced, but to the variable part of that capital, so the relative magnitude of the surplus product is determined by its ratio, not to the remainder of the total product, but to that part of the product which represents necessary labour. Inasmuch as the production of surplus value is the end and aim of capitalist production, wealth should be measured, not by the absolute magnitude of the product, but by the relative magnitude of the surplus product.¹

supported factory legislation, nor his adversaries from first to last, ever succeed in discovering the nature of the fallacies which invalidated his "original discovery". In default of valid reasoning, an appeal was made to practical experience; but the why and wherefore of this practical experience remained a mystery.

¹ Though Senior never learned enough to write in that style, he certainly derived some benefit from his extension to Manchester. In his *Lecture on the Factory Act*, he makes the whole net profit, including both "profit" and "interest" and even "something more" depend upon a single unpaid hour's work. A year before, in his *Outline of Political Economy*, written for the instruction of Oxford undergraduates and of cultured philistines, he had "discovered" (in opposition to Ricardo's view that value is determined by labour time) that profit is derived from the labour of the capitalist, and interest from the capitalist's abstinence, from "abstinence". The idea, preposterous though it be, is an old one; only the word "abstinence" is new. Herr Roscher was quite right when he translated it by the German word "Enthaltung". Some of Roscher's compatriots, commonplace folk with less knowledge of Latin, rendered it in makeshift fashion as "Entsagung" (renunciation).

² "To an individual with a capital of £20,000, whose profits were £2000 per annum, it would be a matter quite indifferent whether his capital would employ 200 or 2000 men, whether the commodity

The sum of the necessary labour and the surplus labour, the period of time in which the worker produces both the value which replaces the value of his labour power and surplus value in addition, constitutes the actual time during which he works—his working day.

produced sold for £10,000 or £20,000, provided, in all cases, his profit were not diminished below £2000. Is not the real interest of the nation similar? Provided its net real income, its rent and profits, be the same, it is of no importance whether the nation consists of ten or of twelve millions of inhabitants." Ricardo, *op. cit.*, p. 416.—Long before Ricardo, Arthur Young, a fanatical champion of surplus product, and, in other respects, a loquacious and uncritical author whose reputation is in inverse proportion to his merits, wrote: "Of what use, in a modern kingdom, would be a whole province thus divided" [in the old Roman manner among small independent peasants], "however well cultivated, except for the mere purpose of breeding men, which, taken singly, is a most useless purpose?" *Political Arithmetic*, etc., London, 1774. p. 47.—Very remarkable indeed is "the strong inclination to represent net wealth as beneficial to the labouring class . . . though it is evidently not on account of being net". T. Hopkins, *On Rent of Land*, etc., London, 1823. p. 126.

CHAPTER EIGHT

THE WORKING DAY

I. LIMITS OF THE WORKING DAY.

We set out from the supposition that labour power is bought and sold at its value. This value, like that of any other commodity, is determined by the labour time necessary for its production. If, therefore, the production of the means of subsistence necessary, on the average, for a worker in one day, needs 6 hours' labour, he must, on the average, work 6 hours every day in order to produce his own labour power, or in order to reproduce the value obtained by its sale. The necessary part of his working day will, therefore, comprise 6 hours; and, so long as the conditions remained unchanged, it is a constant. But a knowledge of this constant does not suffice to tell us the length of the working day.

We will assume that the line $a\text{---}b$ represents the length of the working day, or the duration of the necessary labour time; 6 hours, let us say. According as the labour over and above $a\text{---}b$ amounts to 1, 2, or 6 hours, etc., we shall get three different lines, representing three different working days of 7, 9, and 12 hours respectively. These three lines will be $a\text{---}b\text{---}c$ to represent the 7-hour day; $a\text{---}b\text{---}c$ to represent the 9-hour day; and $a\text{---}b\text{---}c$ to represent the 12-hour day. The extension bc of the line $a\text{---}b$ represents the duration of the surplus labour. Since the whole working day is $ab + bc$ or ac , it varies in length with the variable quantity bc . The component ab being constant, the ratio of bc to ab can always be calculated. In the first working day, it is $\frac{1}{6}$; in the second, it is $\frac{3}{6}$; and in the third, it is $\frac{6}{6}$.

Since, further, the ratio $\frac{\text{surplus working time}}{\text{necessary working time}}$ determines the rate of surplus value, this ratio is given by the ratio of bc to ab . Calculated in percentages, it amounts in the three different working days to $16\frac{2}{3}\%$, 50% , and 100% .

respectively. On the other hand, a mere knowledge of the rate of surplus value will not suffice to tell us the length of the working day. For a 100 % rate of surplus value, the working day may be 8 hours, 10 hours, 12 hours, etc. A knowledge of the rate of surplus value, a knowledge that the rate is 100 %, for instance, will tell us that the two parts of the working day, comprising necessary labour and surplus labour respectively, are of equal length, but it does not tell us the absolute magnitude of either.

The working day, therefore, is not a constant but a variable magnitude. True that one of its portions is determined by the amount of labour time necessary for the perpetual reproduction of the worker, but its total magnitude varies with the duration of surplus labour. The working day is consequently determinable but indeterminate.¹

However, though the working day is not a fixed magnitude but a variable one, it can only vary within certain limits. Nevertheless, its minimal length is indeterminate. Still, if we suppose that $b c$, the prolongation of the line $a b$, representing surplus labour, $= c$, then we get a minimal limit, the working day being restricted to the length of time during which the worker must work for his own maintenance. But, on the basis of the capitalist method of production, necessary labour time cannot possibly constitute the whole of the working day. The working day cannot possibly be restricted to this minimum. At the other end of the scale, the maximum, the working day is restricted. It cannot possibly be prolonged beyond a certain duration. The maximum length of the working day is decreed by two considerations. First of all, by the physical restrictions imposed by nature upon labour power. During the naturally given day of 24 hours, a human being can only expend a certain definite quantity of vital energy. In like manner, a horse that is worked day after day can only work for 8 hours out of the 24. Part of the day must be reserved for rest and sleep; and during another part of the day a human being has other bodily needs to satisfy, has to take food, to wash, to put on his clothes, and so

¹ "A day's labour is vague, it may be long or short." *An Essay on Trade and Commerce containing Observations on Taxation, &c.*, London, 1779, p. 71.

on. But besides these physical limitations, there are mental or moral limitations to the length of the working day. The worker needs time for the satisfaction of mental and social wants, whose comprehensiveness and number are determined by the general level of the civilisation in which he lives. Consequently, the variations in the working day occur within physical and social limits. Still, both the kinds of the restrictions thus imposed are elastic, and therefore capable of considerable variation. That is why, in practice, we meet with a working day of 8 hours, 10, 12, 14, 16, and 18—the length thus varying widely.

The capitalist has bought labour power at its value for a day. He has, therefore, acquired the right of making the worker work for him for a day. But what is a working day? Unquestionably the working day must be shorter than the natural day of 24 hours. How much shorter? The capitalist has his own ideas as to this matter. As a capitalist, he is merely capital personified. His soul is the soul of capital, which has a vital impetus of its own, the impulse towards self-expansion, towards the creation of surplus value towards making the constant factor of capital (the means of production) absorb the greatest possible amount of surplus labour.¹ Capital is dead labour, and, like a vampire, can only keep itself alive by sucking the blood of living labour. The more blood it sucks, the more vigorously does it live. The time during which the worker works, is the time during which the capitalist is consuming the labour power he has bought.² If the worker consumes

¹ This question is far more important than the famous one which Sir Robert Peel propounded to the Birmingham Chamber of Commerce, asking: "What is a pound?" Peel could only have asked the question because he was as much in the dark as to the nature of money as were the "little shilling men" of Birmingham.

² "It is the aim of the capitalist to obtain the greatest possible quantity of labour in return for the amount of capital he lays out upon the purchase of labour." J. G. Courcelle-Seneuil, *Traité théorique et pratique des entreprises industrielles*, second edition, Paris, 1857, p. 82.

³ "An hour's labour lost in a day is a prodigious injury to a commercial State. . . . There is a very great consumption of luxuries among the laboring poor of this kingdom: particularly among the manufacturing populace, by which they also consume their time, the most fatal of consumptions." *An Essay on Trade and Commerce*, etc., pp. 47 and 193.

his disposable time for his own purposes, he is robbing the capitalist.¹

Thus the capitalist appeals to the law of exchange of commodities. Like any other buyer, his desire is to turn the use-value of his commodity to the greatest possible advantage. But suddenly we hear a voice which has hitherto been stifled amid the storm and stress of the process of production. The worker speaks as follows:

"The commodity I have sold you is distinguished from the ordinary mob of commodities by this, that its use creates value, and a greater value than its own. That was why you bought it. What to you seems a spontaneous expansion of capital, seems to me an excessive expenditure of labour power. In the market, you and I know only one law, the law of the exchange of commodities. By that law, the consumption of a commodity belongs, not to the seller who alienates it, but to the buyer, who acquires it. Consequently, the use of my daily labour power belongs to you. But it is my concern to reproduce it daily, by means of the price of its daily sale, so that I can continue to sell it over and over again. Apart from natural wear and tear due to advancing years, and so on, I must be capable of working to-morrow with the normal measure of energy, health, and freshness I possess at my work to-day. You are continually preaching to me the gospel of 'thrift' and 'abstinence'. Well and good! I shall make a reasonable and thrifty use of my sole possession, my labour power, and shall be careful to avoid squandering it. From day to day I shall set so much only of it in motion, shall turn so much only of my capacity for labour into labour, as is compatible with its normal duration and healthy development. If you prolong the working day for me immeasurably, you will reach a point when you will be able in one day to set in motion an amount of my labour power which may exceed what I can replace in three days. What you thus gain in labour, I shall lose in the substance of labour. Using my labour power and despoiling me of my labour power are two very different things. If the working life of an average worker who does a reasonable amount of work be on the

¹ "If the free manual worker rests for a moment, the avicious economist, watching usually, contends that the worker is robbing him." N. Langst, *Théorie des des valeurs, etc.*, London, 1797, vol. II, p. 466.

average 30 years, then the value of my labour power, for which you pay me from day to day, is $\frac{1}{365 \times 30}$ or $\frac{1}{10,950}$ of its total value. But if you consume it all in ten years, then you will have paid me daily $\frac{1}{10,950}$ instead of $\frac{1}{3650}$ of its total value, that is to say only $\frac{1}{3}$ of its daily value; and consequently you will have robbed me daily of $\frac{2}{3}$ of the value of my commodity. You pay me for one day's labour power, and in that day you consume three days' labour power. This conflicts with terms of our contract, and infringes the law of the exchange of commodities. I therefore demand a working day of normal length; and I voice this demand without making any appeal to your heart, seeing that sentiment has nothing to do with business. You may be a model citizen. Perhaps you are a member of the Society for the Prevention of Cruelty to Animals, and one who lives in the odour of sanctity. But the thing that you represent when you are confronted with me has no heart within its breast. The heart which seems to throb there is my own. I demand the normal working day because, like any other seller, I demand the value of my commodity."¹

We see that, apart from extremely elastic limits, the nature of the exchange of commodities imposes no limit upon the working day, no limit upon surplus labour. The capitalist maintains his right as purchaser when he tries to make the working day as long as possible, and to make, whenever possible, two working days out of one. On the other hand, the specific nature of the commodity that has been sold imposes a limit upon the buyer's consumption of it, and the worker is maintaining his right as seller when he wants to restrict the working day to a normal length. Here we encounter an antinomy in which right conflicts with right, both of these rights being hallowed by the law

¹ During the great strike of the London builders in 1886 to 1887, declared in order to enforce the reduction of the working day to 9 hours, the strike committee published a manifesto which corresponded in many respects to the above imaginary plea. This manifesto alluded, not without irony, to the fact that a certain Sir Samuel Morton Peto, one of the most avaricious profiteers among the "building masters", was living "in the odour of sanctity". In the year 1887 this same Peto came to a bad end—financially—just as did a few years later the even more famous German railway contractor Strossberg.

of exchange of commodities. When two rights come into conflict, force decides the issue. That is why, in the history of capitalist production, the decision as to what is a normal working day presents itself in the form of a struggle as to the defining of the limits of the working day—a struggle between the aggregate of capitalists, the capitalist class, and the aggregate of workers, the working class.

2. THE GROUND FOR SURPLUS LABOUR. FACTORY OWNER AND BOYAR.

Surplus labour was not a new discovery made by capital. Wherever a part of society has a monopoly of the means of production, the worker, whether free or bond, must supplement the labour time necessary for his own maintenance by surplus labour time in which he produces the means of subsistence for the owner of the means of production,¹ whether this owner be an Athenian devotee of the Good and the Beautiful, an Etruscan theocrat, a Roman citizen, a Norman baron, an American slave owner, a Wallachian boyar, a modern landlord, or a capitalist.² It is obvious, however, that when a society is so constructed that, from the economic standpoint, the use-value of products predominates over their exchange-value, surplus labour is restricted within a smaller or larger circle of wants, and that, in such a society, an unquenchable thirst for surplus value cannot arise as the direct outcome of the very nature of the method of production. For this reason, overwork in ancient days only became horrible when the aim was to gain exchange-value in its independent form, by the production of gold and silver. In that case, a compulsory working to death was the official form of overwork. Enough upon this matter to read Diodorus Siculus.³ Such conditions were exceptional in the ancient

¹ "Those who labour . . . in reality feed both the pensioners called the rich and themselves." Edmund Burke, *op. cit.*, p. 2.

² Niebuhr, in his *Römische Geschichte*, says with much naivety: "We cannot fail to recognise that such works as those of ancient Etruria, which amaze us even in their ruins, presuppose, on a small scale [!], States consisting of lords and serfs." Simondt, writing with far more insight, says that "Brussels lace" presupposes wage lords and wage slaves.

³ "Who, without pitying their miserable lot, can see these unfortunates" [he is speaking of the slaves in the gold mines on the confines of Egypt, Ethiopia, and Arabia], "who cannot even keep

world. As soon, however, as peoples among which production still takes the lower form of slave labour, serf labour, and the like, are attracted within the domain of the world market which is dominated by the capitalist method of production, so that the sale of products made for export becomes their leading interest, the civilised horrors of overwork are grafted on to the barbaric horrors of slavery, serfdom, etc. In the Southern States of the American Union, negro slavery had a moderate and patriarchal character so long as production was mainly carried on for the satisfaction of the immediate needs of the slave owners. But in proportion as the export of cotton grew to be a vital interest of the slave States, overwork became a factor in a calculated and calculating system, so that here and there it was considered "good business" to use up the negroes' lives in seven years. No longer did the slave owner aim merely at getting a certain quantity of useful products out of the work of his slaves. He wanted to extract surplus value. The same thing has happened in the Danubian Principalities¹ in the case of serf labour.

A comparison of the greed for surplus labour in the Danubian Principalities with the greed for surplus labour in English factories, is an exceptionally interesting one, for the reason that, under the *corvée*, surplus labour has an independent and palpable form.

Let us suppose that the working day comprises 6 hours of necessary labour and 6 hours of surplus labour. Then the free worker gives the capitalist every week $6 \times 6 = 36$ hours of surplus labour. It is just as if he were to work 3 days a week on his own account and 3 days a week gratuitously for the capitalist. But this fact is not obvious; surplus labour and necessary labour merge into one another. The same relation can be just as well described by saying that in each minute the worker labours for 30 seconds on his own behalf and for 30 seconds on behalf of the capitalist. It is otherwise with the *corvée*. Here the necessary labour which the Wallachian peasant does for his own maintenance

their bodies clean or have the wherewithal to cover their nakedness. There is no indulgence, no forbearance, for the sick, the weakly, the old, or woman's weakness. Under the compulsion of the lash they must all go on working until death puts an end to their sufferings and their distress." *Biblicala Kirilica*, lib. 3, cap. 13.

¹ New Rumania.

is quite distinct from the surplus labour he does for the boyar. The former is done on his own plot of land, the latter is done upon the seigniorial estate. Consequently, the two parts of the labour time exist independently side by side. In the *corvée*, surplus labour is set quite apart from necessary labour. Obviously, the fact that surplus labour and necessary labour may appear now in one of these phenomenal forms and now in the other, does not affect the quantitative ratio between surplus labour and necessary labour. Three days of surplus labour in a week remain three days of labour for which the worker receives no equivalent; and it does not matter whether we call them "*corvée*" or "wage labour". But whereas in the capitalist the greed for surplus labour takes the form of an urge to increase the length of the working day indefinitely, in the boyar the same greed takes the simpler form of an endeavour to increase the number of days on which *corvéable* work (forced labour) is done.*

In the Danubian Principalities, the *corvée* was intermingled with the payment of land-tax in kind and with other appurtenances of serfdom, but the main tribute to the ruling class was rendered in the form of the *corvée*. Wherever this is so, we much more often find that serfdom has developed out of the *corvée* than that the *corvée* has developed out of serfdom.† In the Rumanian provinces, matters took this course. There, the original method of production had been based upon communal ownership of the land, though the communes had a different form from that which prevailed among the Slavs and among the

* What follows applies to the conditions that prevailed in the Rumanian provinces before the Crimean War.

† Note added by Engels to the third edition: This applies to Germany as well as to Rumania, and it applies in especial to Prussia eastward of the Elbe. In the fifteenth century, the German peasant was almost everywhere for practical purposes a free man, though subject to certain liabilities in the way of produce and of labour. The German colonists in Brandenburg, Pomerania, Silesia, and East Prussia, were legally recognised to be free men. The victory of the nobles in the Peasants' War put an end to this state of affairs. Not only did the conquered peasants of South Germany become serfs once more. From the middle of the sixteenth century onwards, the free peasants of East Prussia, Brandenburg, Pomerania, and Silesia, and even long those also of Schleswig-Holstein, had been reduced to the status of serfs. See Maurer, *Geschichte der Peasants*, vol. IV; Meitzen, *Der Boden der preussischen Staats*; and Hansen, *Leibeigenschaft in Schleswig-Holstein*.

natives of Hindostan. Part of the land was cultivated in severalty as freehold by the various members of the community; another part, the public land, was tilled by them in common. The products of this joint labour served partly as a reserve fund to provide against the risks of a failure of the crops and other accidents, and partly as a national provision to cover the costs of war, religion, and other communal expenditure. In course of time, military and ecclesiastical dignitaries usurped, together with the common lands, the labour that was performed on these. The labour of free peasants upon common lands became *corvéable* labour due to those who had stolen the common lands. Therewith in actual fact, though without legal sanctions, a system of servile relationships developed, until Russia, the world liberator, under the pretext of abolishing serfdom, made serfdom legal. Of course the code of the *corvée*, promulgated in 1831 by the Russian General Eiseleff, was dictated by the boyars. Thus at a single blow Russia won over the magnates of the Danubian Principalities and gained the applause of fatuous liberals throughout Europe.

According to the Organic Regulation, as this codex of the *corvée* is termed, every Wallachian peasant owes to the so-called lord of the soil, in addition to a number of detailed payments in kind: (1) 12 days of general labour per annum; (2) 1 day of field labour per annum; and (3) 1 day of wood carrying per annum. In all, 14 days per annum. With profound insight into the principles of political economy, the term, "working day", however, is not used in its ordinary sense. It is supposed to mean the time necessary for the production of an average daily product, and this average daily product is so artificially defined that not even a titan could produce it in 24 hours' labour. With typical Russian irony, the Regulation pitifully states that by 12 working days must be understood the product of the manual labour of 36 days; that 1 day of field labour means 3 days; and that 1 day of wood carrying also means 3 days. In all, then, 42 days of *corvéable* labour. To the foregoing must be superadded what is termed "iobagie", service due to the lord of the soil for extraordinary occasions. This supplementary *corvée* is estimated at 14 days per annum for each Wallachian peasant, every village having to furnish year by year, in proportion to the size of its population, a definite contingent to the iobagie.

We get, therefore, a total number of 56 working days per annum which must be devoted to the *corvée*. Now, the climate of Wallachia is a severe one, so that only 220 days in the year are suitable for agricultural work. Deducting from these, 40 Sundays and holidays, and 30 more days on the average for bad weather, we get a residue of 140 working days. The ratio of the *corvée* to the necessary labour, $56 \div 140$, or $66\frac{2}{3}\%$, gives a much smaller rate of surplus value than that which regulates the labour of the English agricultural labourer or the English factory worker. But this applies only to the legally prescribed *corvée*. In a spirit which is even more "liberal" than that of English factory legislation, the Organic Regulation has been competent to provide a means for the evasion of its own prescriptions. After it has made 54 days out of 12, it goes on to arrange the nominal day's work of each of the 54 *corvéable* days in such a way that a portion of a day's work must necessarily be carried over to the following day. For instance, it declares that in one day a stated amount of land must be wooded, an amount which, especially in maize plantations, needs just twice as much time. The legal working day for certain agricultural operations is so extensible that the day begins in the month of May and ends in the month of October. For Moldavia, the conditions are even harsher. One of the boyars, in the intoxication of victory, exclaimed: "The 12 *corvéable* days of the Organic Regulation amount to 365 days in the year!"

While the Organic Regulation of the Danubian Principalities is a positive expression of the greed for surplus labour, a greed which it legalises by every paragraph of the code, the English Factory Acts are a negative expression of the same greed. These Acts curb the impulse of capital to rack labour power dry, curb that impulse by imposing legal limitations upon the length of the working day. The laws have been passed by a State dominated by capitalists and landlords. Quite apart from the menace of the steadily growing labour movement, a restriction of the hours of factory labour was dictated by a necessity akin to that which has brought guano to manure English fields. The same blind eagerness for plunder which had, in one case, exhausted the soil, had, in the other, exhausted the vital

* Further details will be found in E. Rogovait's *Histoire politique et sociale des principautés danubiennes*, Paris, 1883, pp. 307 et seq.

energies of the nation. Periodical epidemics speak as loudly here as does the reduction of the standard of fitness for military service in Germany and France.¹

The Factory Act of 1850, now [1867] in force, allows for the average working day 10 hours, i.e. for the first 5 days of the working week 12 hours from 6 a.m. to 6 p.m., including $\frac{1}{2}$ an hour for breakfast and 1 hour for dinner, thus leaving 10½ working hours, and 8 hours for Saturday, from 6 a.m. to 2 p.m., of which $\frac{1}{2}$ an hour is subtracted for breakfast. There remain 60 actual working hours, 10½ for each of the first 5 days and 7½ for the last.² Factory inspectors are appointed to act as special guardians of these laws. They work under the direct control of the home secretary, and their reports are published half yearly by order of parliament. These reports give continuous and official statistics concerning the capitalists' greed for surplus labour.

We will let the factory inspectors take up their parable for a time.³ "The fraudulent mill owner begins work at a

¹ "Speaking generally, within certain limits it is evidence of the prosperity of organic beings when their size transcends the average size of the members of their species. As far as man is concerned, his growth is inadequate when physical or social conditions are unfavourable. In all the European countries where compulsory military service has been established, there has been, since its introduction, a decline in the average height of adult men, and, speaking generally, in fitness for military service. In France, before the revolution of 1789, the minimum standard of height for infantry soldiers was 165 cm.; in 1808 (by the law of March 10) it became 157 cm.; by the law of March 22, 1832, it was reduced to 150 cm., and in that country, on the average, more than half are rejected on account of insufficient stature or bodily weakness. In Saxony, in the year 1780, the minimum height for an infantryman was 158 cm.; now it is 155 cm. In Prussia it is 157 cm. According to a statement made by Dr. Mayer in the 'Deutsche Zeitung' under date May 9, 1862, as a result of a nine years' average it appears that in Prussia, of 1000 conscripts, 726 are found unfit for military service; 317 on account of insufficient stature; and 309 on account of infirmities. . . . In the year 1858, Berlin was not able to supply its contingent of recruits, the number being 126 short." J. von Liebig, *Die Chemie in ihrer Anwendung auf Agricultur und Physiologie*, 1862, seventh edition, vol. I, pp. 117, 118.

² The history of the Factory Act of 1850 will be found in the later part of this chapter.

³ As far as concerns the period from the beginning of large-scale industry in England down to the year 1845, I shall only touch upon this here and there, referring the reader for fuller details to Friedrich Engels' *Die Lage der arbeitenden Klasse in England*, Leipzig, 1845.

quarter of an hour (sometimes more, sometimes less) before 6 a.m., and leaves off a quarter of an hour (sometimes more, sometimes less) after 6 p.m. He takes 5 minutes from the beginning and from the end of the half hour nominally allowed for breakfast, and 10 minutes at the beginning and end of the hour nominally allowed for dinner. He works for a quarter of an hour (sometimes more, sometimes less) after 2 p.m. on Saturday. Thus his gain is:

	Minutes.
Before 6 a.m.	15
After 6 p.m. ..	15
At breakfast time	10
At dinner time.....	20
	—
Total	60
Five days—300 minutes.	

On Saturday before 6 a.m.	15
At breakfast time	10
After 2 p.m.	15
	—
	40
Total weekly	340

Or 5 hours and 40 minutes weekly, which, multiplied by 50

The fulness of Engels' insight into the nature of the capitalist method of production has been shown by the factory reports, the reports on mines, etc., that have appeared since the publication of his book. When we compare what he says in that book with the official reports of the Children's Employment Commission, published 18 or 20 years later (1883-1884), we realize with what an admirable fidelity to detail he depicted the circumstances. The reports of the Children's Employment Commission deal mainly with branches of industry into which the Factory Acts had not been introduced prior to 1868, and into which these Acts have not, in fact, yet been introduced. In those domains, therefore, there has been little change in the conditions described by Engels. My own examples are chiefly drawn from the free-trade period after 1848, that golden age of which the hagsmen of free trade (no less blatant than they are ignorant) relate such marvels to the Germans.—For the rest, the reasons why England figures here in the foreground are twofold. In the first place, this is the classical land of capitalist production; and, in the second place, England is the only country which has published a continuous series of official statistics concerning the workers now under consideration.

working weeks in the year (allowing two for holidays and occasional stoppages), is equal to 37 working days."¹

"Five minutes a day's increased work, multiplied by 50 weeks, are equal to two and a half days of produce in the year."²

"An additional hour a day gained by small instalments before 6 a.m., after 6 p.m., and at the beginning and end of the times nominally fixed for meals, is nearly equivalent to working 13 months in the year."³

Crises during which production is interrupted and the factories work "short time" (for only a part of the week), do not, of course, affect the tendency to protract the working day. The sicker a trade, the more essential it is to make profits on the work actually done. The less time spent in work, the more of that time has to be turned into surplus labour time. We find, therefore, that the factory inspectors, reporting on the crisis that prevailed from 1857 to 1858, write:

"It may seem inconsistent that there should be any overworking at a time when trade is so bad; but that very badness leads to the transgression by unscrupulous men, they get the extra profit of it. . . . In the last half year," says Leonard Horner, "122 mills in my district have been given up; 143 were found standing, yet, overwork is continued beyond the legal hours."⁴

"For a great part of the time," writes Mr. Howell, "owing to the depression of trade, many factories were altogether closed, and a still greater number were working short time. I continue, however, to receive about the usual number of complaints that half or three-quarters of an hour in the day, are snatched from the workers by encroaching upon the times professedly allowed for rest and refreshment."⁵

The same phenomenon was reproduced on a smaller scale during the terrible cotton-crisis from 1861 to 1865.⁶

¹ *Suppression, etc.*, by Mr. L. Horner, Inspector of factories, in *Factory Regulations Act*, ordered by the House of Commons to be printed, August 9, 1850, pp. 4-5.

² *Reports of Inspectors of Factories*, October 1856, p. 13.

³ *Ibid.*, April 30, 1858, p. 2.

⁴ *Op. cit.*, p. 43.

⁵ *Op. cit.*, p. 15.

⁶ *Reports, etc.*, April 30, 1861. See Appendix No. 2; *Ibid.*, October 31, 1862, pp. 7, 52, and 53. Violations of the Acts became more numerous during the last half year 1863. Cf. *Ibid.*, October 31, 1863, p. 7.

"It is sometimes advanced by way of excuse, when persons are found at work in a factory, either at a meal hour, or at some illegal time, that they will not leave the mill at the appointed hour, and that compulsion is necessary to force them to cease work [cleaning their machinery, etc.], especially on Saturday afternoons. But, if the hands remain in a factory after the machinery has ceased to revolve . . . they would not have been so employed if sufficient time had been set apart specially for cleaning, etc., either before 6 a.m. [sic] or before 2 p.m. on Saturday afternoons."¹

"The profit to be gained by it" [overworking in violation of the Act] "appears to be, to many, a greater temptation than they can resist; they calculate upon the chance of not being found out; and when they see the small amount of penalty and costs, which those who have been convicted have had to pay, they find that if they should be detected there will still be a considerable balance of gain.* . . . In cases where the additional time is gained by a multiplication of small thefts in the course of the day, there are insuperable difficulties to the inspectors making out a case."²

These "small thefts" of capital from the worker's time for

* *Reports, etc.*, October 31, 1836, p. 23.—The evidence of the factory owners, given in courts of law, shows with what stubbornness the factory hands resist every attempt to curtail factory labour! In the beginning of June 1836 the magistrates of Dewsbury, Yorks, were informed that the owners of eight large mills in the neighbourhood of Batley had infringed the Factory Acts. Some of the factory owners were accused of having kept at work five boys between the ages of 12 and 15 from 6 a.m. on Friday to 4 p.m. on the following Saturday, not allowing them any break except for meals, and 1 hour for sleep at midnight. These children had had to do their 30-hour stretch of work in the "shoddy hole", the place in which the woollen rags are torn to pieces, and where the breathing of the atmosphere with dust, shreds, etc., forces even an adult workman to tie a handkerchief over his mouth for the protection of his lungs. The accused worthies, being Quakers, were prevented by religious scruples from taking an oath. They affirmed that, in the tenderness of their hearts, they had allowed a pause of 4 hours in which the poor little children could have slept—but the obstinate youngsters had absolutely refused to go to bed! The Quaker worthies were fined £10. Dryden must have had such men in mind when he wrote:

Fox full fraught in working severity,
That feared an oath, but like the devil would be,
That look'd like Lent, and had the holy kear,
And durst not sin before he said his prayer!

* *Ibid.*, October 31, 1836, p. 24.

² *Op. cit.*, p. 23.

food and recreation are termed by the factory inspectors the "petty pilfering of minutes"; "snatching a few minutes";¹ or, by the workers in their own technical vernacular, "nibbling and cribbling at meal times".²

Manifestly in this atmosphere there is no mystery about the creation of surplus value by surplus labour. "If you allow me," said a highly respectable master to me, "to work only 20 minutes in the day overtime, you put £1,000 a year in my pocket."³ Again: "Moments are the elements of profit."⁴

In this respect, nothing can be more characteristic than the designation of the workers who work for the full number of hours as "full timers", and the children under 13 who are allowed to work only 6 hours as "half timers".⁵ The worker is here nothing more than personified labour time. All individual distinctions are merged in those of "full timers" and "half timers".

3. BRANCHES OF ENGLISH INDUSTRY IN WHICH THERE IS NO LEGAL LIMIT TO EXPLOITATION.

"The cupidity of mill owners whose credulities in the pursuit of gain have hardly been exceeded by those perpetrated by the Spaniards in the conquest of America in the pursuit of gold,"⁶—this werewolf's hunger for surplus labour, these monstrous exactions, this impulse towards the perpetual increase of the working day—ultimately led to the imposition of legal restrictions upon the demands of capital. Hitherto, we have been considering these demands in the branches of industry where such legal restrictions exist. Now let us turn to consider certain branches of production in which the exploitation of labour is either free from such restrictions, or was free until yesterday.

¹ *Op. cit.*, p. 48.

² *Op. cit.*, p. 48.

³ *Op. cit.*, p. 48.

⁴ *Op. cit.*, p. 48.

⁵ *Reports, etc.*, April 30, 1880, p. 50.

⁶ This is the official expression, both in the factories and in the reports.

⁷ The words quoted in the text are by John Wade, *History of the Middle and Working Classes*, third edition, London, 1835, p. 114.—The theoretical part of this book, a sort of handbook of political economy, is, considering its date, a fairly original work, especially as regards commercial crises. The historical part, on the other hand, plagiarizes shamelessly from Sir F. M. Eden's *State of the Poor*, London, 1797.

Mr. Broughton Charlton, a county magistrate, speaking as chairman of a meeting held at the Assembly Rooms, Nottingham, on January 14, 1860, and reported in the "Daily Telegraph" of January 17, 1860, declared "that there was an amount of privation and suffering among that portion of the population connected with the lace trade, unknown in other parts of the kingdom, indeed, in the civilised world. . . . Children of nine or ten years are dragged from their squalid beds at two, three, or four o'clock in the morning, and compelled to work for a bare subsistence until ten, eleven, or twelve at night, their limbs wearing away, their frames dwindling, their faces whitening, and their humanity absolutely sinking into a stone-like torpor, utterly horrible to contemplate. . . . We are not surprised that Mr. Mallett, or any other manufacturer, should stand forward and protest against discussion. . . . The system, as the Rev. Montagu Valpy describes it, is one of unmitigated slavery, socially, physically, morally, and spiritually. . . . What can be thought of a town which holds a public meeting to petition that the period of labour for men shall be diminished to eighteen hours a day? . . . We declaim against the Virginian and Carolina cotton planters. Is their black-market, their lash, and their barter of human flesh more detestable than this slow sacrifice of humanity which takes place in order that veils and collars may be fabricated for the benefit of capitalists?"

During the last twenty-two years, the Staffordshire potteries have been the subject of three parliamentary enquiries. The result of these enquiries is embodied in Mr. Scriven's report of 1841 to the Children's Employment Commissioners; in Dr. Greenhow's report of 1860, published by order of the medical officer of the Privy Council (*Public Health, Third Report*, pp. 112-113); and, lastly, in Mr. Longe's report of 1862, in the *First Report of the Children's Employment Commission*, June 13, 1863. For my purposes it will suffice to cull from the reports of 1860 and 1863 the evidence given by some of the exploited children. From their condition, we may infer what was the condition of the adults (women for the most part), in a branch of industry by the side of which cotton spinning assumes the aspect of a pleasant and healthy occupation.¹

¹ Cf. Rogers' *Lace*, etc., pp. 240-251.

"William Wood, 9 years old, was 7 years and 10 months when he began to work. He 'ran moulds' (carried ready-moulded articles into the drying room, afterwards bringing back the empty mould) from the beginning. He came to work every day in the week at 6 a.m., and left off about 9 p.m. 'I work till 9 o'clock at night six days in the week. I have done so seven or eight weeks.' Fifteen hours of labour for a child of 7 years old! J. Murray, 12 years of age, says: 'I turn jigger, and run moulds. I come at 6. Sometimes I come at 4. I worked all last night, till 6 o'clock this morning. I have not been in bed since the night before last. There were eight or nine other boys working last night. All but one have come this morning. I get three shillings and sixpence. I do not get any more for working at night. I worked two nights last week.' Parnyough, a boy of 10: 'I have not always an hour [for dinner]. I have only half an hour sometimes; on Thursday, Friday, and Saturday.'"

According to Dr. Greenhow, the average expectation of life in the pottery districts of Stoke-upon-Trent and Wolstanton is extraordinarily short. Although in the district of Stoke only 36.6%, and in Wolstanton only 30.4%, of the male population over 20 years of age are employed in the potteries, among these men in the first district more than half, and in the second about two-fifths, of the deaths are due to pulmonary diseases affecting the potters. Dr. Boothroyd, a general practitioner at Hanley, says: "Each successive generation of potters is more dwarfed and less robust than the preceding one." In like manner another doctor, M'Bean, declares: "Since he began to practise among the potters twenty-five years ago he has observed a marked degeneration, especially shown in diminution of stature and breadth." These statements are taken from Dr. Greenhow's report of 1860.¹

From the 1863 report of the Children's Employment Commissioners I take the following statement, being evidence given by Dr. J. T. Asledge, senior physician to the North Staffordshire Infirmary: "The potters as a class, both men and women, represent a degenerated population, both physically and morally. They are, as a rule, stunted

¹ *Children's Employment Commission, First Report, etc., 1863. Evidence, pp. 15, 29, and 18.*

² *Public Health, Third Report, etc., pp. 100, 104, and 105.*

in growth, ill-shaped, and frequently ill-formed in the chest; they become prematurely old, and are certainly short-lived; they are phlegmatic and bloodless, and exhibit their debility of constitution by obstinate attacks of dyspepsia, and disorders of the liver and kidneys, and by rheumatism. But of all diseases they are especially prone to chest-disease, to pneumonia, phthisis, bronchitis, and asthma. One form would appear peculiar to them, and is known as potter's asthma, or potter's consumption. Scrofula attacking the glands, or bones, or other parts of the body, is a disease of two-thirds or more of the potters. . . . That the 'degenerescence' of the population of this district is not even greater than it is, is due to the constant recruiting from the adjacent country, and intermarriages with more healthy races."¹

Mr. Charles Parsons, recently house surgeon in the North Staffordshire Infirmary, writing to Commissioner Leaze, says: "I can only speak from personal observation, and not from statistical data, but I do not hesitate to assert that my indignation has been aroused again and again at the sight of poor children whose health has been sacrificed to gratify the avarice of either parents or employers." He enumerates the causes of the maladies from which the potters suffer, and sums them all up in the phrase "long hours". In their report, the commissioners express the hope that "a manufacture which has assumed so prominent a place in the whole world, will not long be subject to the remark that its great success is accompanied with the physical deterioration, widespread bodily suffering and early death of the workpeople . . . by whose labour and skill such great results have been achieved".²

What applies to the potteries in England is equally applicable to those in Scotland.³

The manufacture of lucifer matches dates from 1833, when the method of tipping matches with phosphorus was discovered. Since 1845, this manufacture has developed rapidly in England, especially in the more thickly populated parts of London, and also in Manchester, Birmingham, Liverpool, Bristol, Norwich, Newcastle, and Glasgow. Associated with the spread of the industry has been the spread of the disease known as "phossy jaw", which a

¹ *Children's Employment Commission, First Report*, p. 24.

² *Ibid.*, pp. 22 and XL.

³ *Ibid.*, p. XLVII.

Viennese physician discovered in 1845, as a disease peculiar to the makers of lucifer matches. Half the workers are children under 13 and young persons under 18 years of age. Owing to its unhealthiness and unpleasantness, this occupation is in such bad odour that only the most miserable part of the working class, half-starved widows, and the like, will deliver up their children as its prey—"ragged, half-starved, untaught children." Among the witnesses that Commissioner White examined in the year 1863, there were 270 under eighteen, 50 under ten, 10 only eight years old, and 5 only six years old. The length of the working day ranged from 12 to 14 or 15 hours; night-work was usual; meal times were irregular, food being generally taken in the workrooms, full of the poisonous exhalations of phosphorus.¹ Dante would have found the worst horrors of his *Inferno* surpassed in this manufacture.

In the manufacture of wallpapers, the coarser varieties are printed by machinery, and the finer kinds by hand (block printing). The trade is at its briskest between the beginning of October and the end of April. During this period, work usually goes on without intermission from 6 in the morning until 10 in the evening or even later.

J. Leach deposes: "Last winter six out of nineteen girls were away from ill-health at one time from overwork. I have to bowl at them to keep them awake." W. Druffy: "I have seen when the children could none of them keep their eyes open for the work; indeed, none of us could."

J. Lighthourne: "Am 13. . . . We worked last winter till 9 [evening], and the winter before till 10. I used to cry with sore feet every night last winter." G. Aspsden: "That boy of mine, . . . when he was 7 years old I used to carry him on my back to and fro through the snow, and he used to have 16 hours a day. . . . I have often knelt down to feed him as he stood by the machine, for he could not leave it or stop." Smith, the managing partner of a Manchester factory: "We" [he means his "hands" who work for "us"] "work on, with no stoppage for meals, so that the day's work of 10½ hours is finished by 4.30 p.m., and all after that is overtime."² Does Mr. Smith take no

¹ *Children's Employment Commission, First Report*, p. LIV.

² *Ibid.*, p. LIV.

³ This word "overtime" is not to be understood in the same sense as what I speak of as "surplus labour". Mr. Smith and his colleagues consider 10½ hours of labour as the normal working day.

meals himself during 10½ hours? "We [this same Smith] seldom leave off working before 6 p.m. [he means leave off the consumption of "our" labour-power machines], so that we [Smith again!] are really working overtime the whole year round. . . . For all these, children and adults alike [152 children and young persons, and 140 adults], the average work for the last 18 months has been at the very least 7 days and 5 hours, or 78½ hours, per week. For the six months ending May 2 this year [1882], the average was higher—8 days or 84 hours a week." Still this same Mr. Smith, who is so extremely fond of using the plural number, adds with a smile, "Machine work is not great". So the employers in the block printing say: "Hand labour is more healthy than machine work." On the whole, manufacturers are outraged by the proposal "to stop the machines at least during meal times". A clause, says Mr. Otley, manager of a wallpaper factory in the Borough, "which allowed work between, say, 6 a.m. and 9 p.m. . . . would suit us [!] very well, but the factory hours, 6 a.m. to 6 p.m., are not suitable. Our machine is always stopped for dinner. [What generosity!] There is no waste of paper and colour to speak of. But," he adds sympathetically, "I can understand the loss of time not being liked". In their report, the commissioners naively inform their readers that the fear of losing time entertained by some of the "leading firms" (the fear of losing time in which the labour of others can be appropriated, and hence of losing profit), is not a sufficient reason for making children under 13 and young persons under 18 work 12 to 16 hours a day, for depriving the youngsters of free time in which to eat their dinners, for supplying them with food only as a steam-engine is supplied with coal and water, as wool is supplied with soap, as a wheel is supplied with lubricating oil, and so co—during the actual process of production, the food being a mere accessory needed by the instrument of labour.⁴

which, of course, includes the normal surplus labour. When these 10½ hours are finished, overtime, which is paid somewhat better, begins. We shall see later that the labour expended during the so-called normal working day is paid less than its value, so that overtime is merely a capitalist trick for the extortions of more surplus labour—to this, even if the labour power expended during the normal working day be paid at its full value.

⁴ Children's Employment Commission, *First Report*, evidence, pp. 123, 124, 125, 140, and LIV.

We come now to the baking industry. If the making of bread by machinery (recently introduced here and there) be ignored, we are entitled to say that no other branch of industry in England has preserved in modern times so archaic a method of production. We can learn this from the study of the Latin poets who wrote in the days of the Roman Empire. I have already pointed out that capital is, to begin with, indifferent as to the technical character of the labour process of which it gains control. At first the process is taken over just as it exists.

The almost incredible extent to which bread is adulterated (especially in London) was first revealed by the House of Commons Committee on the adulteration of articles of food, 1855-1856; and by Dr. Hassall's work, *Adulterations Detected*.¹ In consequence of these revelations, there was passed on August 6, 1860, an Act for Preventing the Adulteration of Articles of Food and Drink. The law has remained a dead letter, inasmuch as it naturally shows the most tender consideration for every free trader who desires "to turn an honest penny" by the buying or selling of adulterated commodities.² The committee was naïve enough to formulate more or less frankly its conviction that free trade is essentially trade with adulterated, or as the English humorously phrase it, "sophisticated" goods. In fact those who practise this kind of sophistry know better even than Protagoras how to make white black, and black white, and better than the Eleatics how to prove that everything which appears real is nothing more than seeming.³

¹ Finely powdered alum, sometimes mixed with salt, is a normal article of commerce, bearing the distinctive name of "bakers' stuff".

² Soot is well known to be a potent form of carbon, and a valuable manure which capitalistically inclined chimneysweeps sell to English farmers. In 1862, a British jury was called upon to decide whether soot with which, unknown to the buyer, 90 % of dust and sand had been mixed, was "genuine" soot in the "commercial" sense, or "adulterated" soot in the "legal" sense. The "friends of commerce" who formed the jury decided it to be genuine commercial soot, giving a verdict for the defendant, and ordering that the plaintiff should pay the costs of the suit.

³ The French chemist Chevallier, in a treatise upon the "sophistications" of commodities, enumerates for a number of the 600 or more articles he passes under review as many as 20, 25, or even 30 different methods of adulteration. He adds that he does not know all the methods, and does not mention all the methods he knows.

At all events, the committee had directed public attention to this matter of "daily bread", and therefore to the baking trade. Simultaneously, from public meetings and in the form of petitions to parliament, came complaints from the London journeymen bakers as to the way in which they were overworked. The cry was so urgent that Mr. H. S. Threlkeld, one of the members of the commission of 1863 which has been mentioned several times, was appointed a royal commissioner of enquiry. His report,¹ with the evidence it contained, may not have touched the public heart, but certainly made the public stomach queasy. Englishmen, being always diligent readers of Holy Writ, knew well enough that man (unless, by the grace of God, he should be a capitalist, a landlord, or a sinecurist) is condemned to eat his bread in the sweat of his face; but they had not known before that man is condemned to eat his bread daily after the dough has been moistened with a certain quantity of human sweat, mixed with the discharge from abscesses, cobwebs, dead cockroaches, and decayed German yeast—to say nothing of shen, sand, and other pleasant mineral ingredients. Consequently, without any regard for His Holiness Free-trade, the hitherto "free" baking industry was subjected to the supervision of State inspectors by an Act of Parliament passed at the end of the parliamentary session of 1863. By the same Act, work between 9 in the evening and 5 in the morning was forbidden for journeymen bakers under 18 years of age. The last mentioned clause speaks volumes as to the extent of overwork in this patriarchal and homely line of business.

"The work of a London journeyman baker begins, as a rule, at about eleven at night. At that hour he 'makes the dough',—a laborious process, which lasts from half an hour to three quarters of an hour, according to the size of the batch or the labour bestowed upon it. He then lies down upon the kneading board, which is also the covering of

He describes 6 ways of adulterating sugar; 9, of olive oil; 10, of butter; 11, of salt; 12, of milk; 13, of bread; 14, of brandy; 15, of flour; 16, of chocolate; 17, of wine; 18, of coffee; and so on. Even God Almighty does not escape the tricks of the adulterator. See, in this connection, *Rouard de Card, De la falsification des substances alimentaires*, Paris, 1858.

¹ Report, etc., relating to the Grievances complained of by the Journeymen Bakers, etc., London, 1864, and *Second Report, etc.*, London, 1865.

the trough in which the dough is 'made'; and, with a sack under him, and another rolled up as a pillow, he sleeps for about a couple of hours. He is then engaged in a rapid and continuous labour for about five hours—throwing out the dough, 'sealing it off', moulding it, putting it into the oven, preparing and baking rolls and fancy bread, taking the batch bread out of the oven, and up into the shop, etc., etc. The temperature of a bakehouse ranges from about 75 to upwards of 90 degrees, and in the smaller bakehouses approximates usually to the higher rather than to the lower degree of heat. When the business of making the bread, rolls, etc., is over, that of its distribution begins, and a considerable proportion of the journeymen in the trade, after working hard in the manner described during the night, are upon their legs for many hours during the day, carrying baskets, or wheeling hand-carts, and sometimes again in the bakehouse, leaving off work at various hours between 1 and 6 p.m. according to the season of the year, or the amount and nature of their master's business; while others are again engaged in the bakehouse in 'bringing out' more batches until late in the afternoon.* . . . During what is called 'the London season', the operatives belonging to the 'full-priced' bakers at the West End of the town, generally begin work at 11 p.m., and are engaged in making the bread, with one or two short (sometimes very short) intervals of rest, up to 8 o'clock the next morning. They are then engaged all day long, up to 4, 5, 6, and as late as 7 o'clock in the evening, carrying out bread, or sometimes in the afternoon in the bakehouse again, assisting in the biscuit-baking. They may have, after they have done their work, sometimes five or six, sometimes only four or five hours' sleep before they begin again. On Fridays they always begin sooner, some about ten o'clock, and continue, in some cases, at work, either in making or delivering the bread, up to 8 p.m. on Saturday night, but more generally up to 4 or 5 o'clock, Sunday morning. On Sundays the men must attend twice or three times during the day for an hour or two to make preparations for the next day's bread. . . . The men employed by the underselling masters [who sell their bread under the 'full price', and who, as already pointed out, comprise three-fourths of the London bakers] have not only to work on the average longer hours,

* *First Report, etc.*, p. VI.

but their work is almost entirely confined to the bakehouse. The underselling masters generally sell their bread . . . in the shop. If they send it out, which is not common, except as supplying chandlers' shops, they usually employ other hands for that purpose. It is not their practice to deliver bread from house to house. Towards the end of the week, . . . the men begin on Thursday night at 10 o'clock, and continue on with only slight intermission until late on Saturday evening."¹

Even from the bourgeois outlook, it was possible to grasp what the "underselling masters" were doing. "The unpaid labour of the men was made the source whereby the competition was carried on." The "full-priced baker" denounced his underselling competitors to the Commission of Inquiry as adulterators and as persons who stole others' labour. "They only exist now by first defrauding the public, and next getting 18 hours' work out of their men for 12 hours' wages."²

The adulteration of bread, and the formation of a class of bakers who sold bread below its proper price, began to develop in England at the beginning of the eighteenth century, as soon as the industry lost its guild characteristics, and when the capitalist, in the form of the miller or the flour factor, began to take his stand behind the nominal master baker.³

After what has just been said, we are not surprised to learn that the report classes journeymen bakers among short-lived workers, and tells us that those bakers who

¹ *First Report, etc.*, p. LXXI.

² George Read, *The History of Baking*, London, 1848, p. 16.

³ *First Report, etc.*, evidence of the "full-priced baker" Christman, p. 228.

⁴ George Read, *op. cit.* At the end of the seventeenth century and at the beginning of the eighteenth, the factors, or agents, that were crowding into every possible trade were still denounced as public nuisances. For instance, at the quarter sessions of the justices of the peace for the county of Somerset, the grand jury addressed a presentment to the Lower House in which we read: "That these factors of Blackwell Hall are a public nuisance and prejudice to the clothing trade, and ought to be put down as a nuisance." *The Case of our English Wooll, etc.*, London, 1683, pp. 6-7. Thus was laid the foundation of capitalist production in this trade, thus was established a basis for the unlimited extension of the working day and for night-work, although, even in London, night-work did not become general until after 1824. *First Report, etc.*, p. VIII.

have escaped the decimation during childhood that is so apt to be the lot of persons born in the working class, seldom reach the age of 42. Nevertheless, the baking trade is always overwhelmed with applicants for work. As far as London is concerned, the supply of labour in the baking trade comes from Scotland, the western agricultural districts of England, and Germany.

In the years 1858 to 1860, the journeymen bakers in Ireland organised at their own expense great public meetings, to agitate against night-work and Sunday work. At some of these meetings, for instance at the Dublin meeting in May 1860, the general public espoused the cause of the bakers, and did so with characteristic Irish fervour. As a result of the agitation, night-work in the baking trade was abolished in Wexford, Kilkenny, Clonmel, Waterford, etc.

"In Limerick, where the grievances of the journeymen are demonstrated to be excessive, the movement has been defeated by the opposition of the master bakers, the miller bakers being the greatest opponents. The example of Limerick led to a retrogression in Ennis and Tipperary. In Cork, where the strongest possible demonstration of feeling took place, the masters, by exercising their power of turning the men out of employment, have defeated the movement. In Dublin, the master bakers have offered the most determined opposition to the movement, and by discountenancing as much as possible the journeymen promoting it, have succeeded in leading the men into acquiescence in Sunday work and night-work, contrary to the convictions of the men."

The Committee on the Baking Trade in Ireland (a committee of the English government, which is armed to the teeth) remonstrated, in the gently lugubrious tone of one issuing invitations to a funeral, with the implacable master bakers of Dublin, Limerick, Cork, etc.: "The Committee believe that the hours of labour are limited by natural laws, which cannot be violated with impunity. That for master bakers to induce their workmen, by the fear of losing employment, to violate their religious convictions and their better feelings, to disobey the laws of the land, and to disregard public opinion" (this all refers to Sunday labour), "is calculated to provoke ill-feeling between workmen

and masters, . . . and affords an example dangerous to religion, morality, and social order. . . . The Committee believe that any constant work beyond 12 hours a day encroaches on the domestic and private life of the working man, and so leads to disastrous moral results, interfering with each man's home, and the discharge of his family duties as a son, a brother, a husband, a father. Work beyond 12 hours has a tendency to undermine the health of the working man, and so leads to premature old age and death, to the great injury of families of working men, thus deprived of the care and support of the head of the family when most required."¹

So much for Ireland. On the other side of the Irish Channel, in Scotland, the agricultural labourer, the ploughman, protests against having to work for 13 or 14 hours every weekday in a most inclement climate, with 4 hours additional work on Sunday (Scottish sabbatarianism notwithstanding),² at the very time when, before a London coroner's jury, a guard, an engine driver and a signalman are giving evidence concerning the overwork of railwaymen. There had been a terrible railway accident, hurrying hundreds of passengers into the other world. The disaster was attributed to negligence on the part of the railwaymen concerned. These testified unanimously to the effect that till ten or twelve years before they had worked for only 8 hours a day. During the last five or six years, their working time had been screwed up to 14, 15, and even 20 hours; while, when there was special pressure, as at holiday times, when excursion trains were being run, they sometimes

¹ *Op. cit.*

² Public meeting of agricultural labourers at Lasswade, near Edinburgh, January 2, 1886. "*Workman's Advocate*," January 12, 1886.—Towards the close of 1863, a trade union of agricultural labourers was formed, beginning in Scotland. This is an event of historical importance. In one of the most down-trodden agricultural districts of England, in Buckinghamshire, the agricultural labourers (in March 1867) struck to secure a rise in wages from 2s. or 2s. 6d. to 3s. a week.—[Note added to the third edition: It will be seen from the foregoing that the movement of the English agricultural proletariat, which had been completely arrested after the suppression of the turbulent manifestations that followed the events of 1830, and after the introduction of the new Poor Law, had begun again in the sixties. It became speech-making in 1872. I shall return to this matter in the second volume of the present work, and shall there discuss the Blue Books relating to the position of the English agricultural workers which have been published since 1867.]

had to work from 40 to 50 hours without a break. They were ordinary men, not titans. A point came when their labour power was exhausted, when torpor seized them. Their brains stopped thinking and their eyes could no longer see. The thoroughly "respectable" British jurymen answered by a verdict which sent the accused to the next assizes on a charge of manslaughter, adding a rider to their verdict in which they expressed the pious hope that the capitalist magnates of the railways, would, in future, be a trifle more extravagant in their expenditure upon labour power, and somewhat more "abstemious", more "self-denying", more "thrifty", in sucking the blood of the labour power they paid for.¹

From the motley crowd of workers of all occupations, ages, and sexes, that press on us more insistently than did the souls of the slain on Ulysses—the workers on whose forms and faces, without referring to the Blue Books under their arms, we see at a glance the imprint of overwork—let us take two more figures between whom there is a striking contrast which serves only to prove that in the eyes of capital all human beings are of one flesh. The first is a milliner and the second is a blacksmith.

¹ "Reynolds' Newspaper", January, 1866.—Week after week, in this same paper, under the occasional headings of "hateful and fatal accidents", "appalling tragedies", etc., we read a long list of fresh railway catastrophes. Concerning these, a railwayman working on the North Staffordshire line comments: "Every one knows the consequences that may occur if the driver and fireman of a locomotive engine are not constantly on the look-out. How can that be expected from a man who has been at such work for 29 or 30 hours, exposed to the weather, and without rest. The following is an example which is of very frequent occurrence:—One fireman commenced work on the Monday morning at a very early hour. When he had finished what is called a day's work, he had been on duty 14 hours 40 minutes. Before he had time to get his tea, he was again called on for duty, . . . The next time he finished he had been on duty 14 hours 25 minutes, making a total of 29 hours 15 minutes without intermission. The rest of the week's work was made up as follows:—Wednesday, 13 hours; Thursday, 15 hours 35 minutes; Friday, 14½ hours; Saturday, 14 hours 10 minutes, making a total for the week of 86 hours 40 minutes. Now, Sir, fancy his astonishment on being paid 6½ days for the whole. Thinking it was a mistake, he applied to the timekeeper, . . . and enquired what they considered a day's work, and was told 13 hours for a good man (i.e. 78 hours). . . . He then asked for what he had made over and above the 78 hours per week, but was refused. However, he was at last told they would give him another quarter, i.e. 10d." *Op. cit.*, February 4, 1866.

In the last weeks of June 1863, all the London daily papers contained a paragraph with the sensational caption, "death from simple overwork". It concerned the death of the milliner, Mary Anne Walkley, 20 years of age, exploited at an extremely respectable dressmaking establishment, run by a lady with the fine-sounding name of Elise. According to this old story, which is ever and again renewed,¹ the girl worked, on an average, 16½ hours daily, but during the season was frequently employed for 30 hours at a stretch, reviving her flagging powers from time to time with supplies of sherry, port, or coffee. It was now the height of the season. Dresses for the fine ladies invited to the Ball in honour of the newly imported Princess of Wales had to be got ready at the shortest notice. Mary Anne Walkley had worked without pause for 26½ hours, together with sixty other girls, thirty of them in one room, where the allowance of airspace was only one-third of the number of cubic feet regarded by hygienists as the necessary minimum. At night they slept two by two in stifling cubicles into which a bedroom was divided by wooden partitions.² This, be it noted, was one of the leading millinery establishments in

¹ Cf. Engels, *op. cit.*, pp. 233-234.

² Dr. Letheby, consulting physician to the Board of Health, declared in this connexion: "The minimum of air for each adult ought to be in a sleeping room 300 and in a dwelling room 300 cubic feet." According to Dr. Richardson, senior physician to one of the London hospitals: "With needlewomen of all kinds, including milliners, dressmakers, and ordinary sempstresses, there are three miseries—overwork, deficient air, and either deficient food or deficient digestion. . . . Needlework, in the main, . . . is infinitely better adapted to women than to men. But the mischiefs of the trade, in the metropolis especially, are that it is monopolised by some twenty-six capitalists, who, under the advantages that spring from capital, can bring in capital to force economy out of labour. This power tells throughout the whole class. If a dressmaker can get a little circle of customers, such is the competition that, in her home, she must work to the death to hold together, and this same overwork she must of necessity inflict on any who may assist her. If she fail, or do not try independently, she must join an establishment, where her labour is not less, but where her money is safe. Placed thus, she becomes a mere slave, tossed about with the variations of society. Now at home, in one room, starving, or near to it, then engaged 12, 16, 20, even 28 hours out of the 24, in an air that is scarcely tolerable, and on food which, even if it be good, cannot be digested in the absence of pure air. On these victims, consumption, which is purely a disease of bad air, feeds." *Work and Overwork*, "Social Science Review", July 18, 1889.

London. Mary Anne Walkley was taken ill on Friday and died on Sunday, without, to Madam Elias's astonishment, having previously finished the work in hand. A doctor, Mr. Keys, called in too late, testified before the coroner's jury that "Mary Anne Walkley had died from long hours of work in an overcrowded workroom and a too small and badly ventilated bedroom". Wishing to give this gentleman a lecture in good manners, the coroner's jury brought in a verdict to the effect that "the deceased had died of apoplexy, but there was reason to fear that her death had been accelerated by overwork in an overcrowded workroom". The "Morning Star", the organ of the free traders, Cobden and Bright, commenting on the matter in its issue of June 23, 1863, wrote: "Our white slaves, who are toiled into the grave, for the most part silently pine and die."

Now, as regards the contrasted figure, that of the blacksmith, let me quote Dr. Richardson once more: "It is not only in dressmakers' rooms that working to death is the order of the day, but in a thousand other places; in every place I had almost said, where 'a thriving business' has to be done. . . . We will take the blacksmith as a type. If the poets were true, there is no man so hearty, so merry, as the blacksmith; he rises early and strikes his sparks before the sun; he eats and drinks and sleeps as no other man. Working in moderation, he is, in fact, in one of the

The "Times" found the incident useful for a defence of the American slave owners against Bright & Co. In a leading article under date July 2, 1868, we read: "Very many of us think that, while we work our own young women to death, using the scourge of starvation instead of the crack of the whip, as the instrument of compulsion, we have scarcely a right to hound on fire and slaughter against families who were born slave owners, and who, at least, feed their slaves well, and work them lightly." In like manner, the "Standard" a very organ, fell foul of the Rev. Newman Hall: "He excommunicated the slave owners but prays with the fine folk, who without remorse make the omnibuses drivers and conductors of London work 16 hours a day for the wages of a day." Finally comes the oracle, Thomas Carlyle, of whom I wrote in 1890: "The genius has gone to the devil, the craft remains." In a brief parable, he reduces the one great event of contemporary history, the American Civil War, to this level, that the Peter of the North wants to break the head of the Paul of the South because the Peter of the North hires his workers "by the day, and the Paul of the South hires them by the lifetime", "*Macmillan's Magazine*", *Illus. Americans in 1860*, August 1863. Thus the bubble of Tory sympathy for the urban workers (the Tories never had any sympathy for the agricultural workers) has burst at last. Inside it we find—slavery!

best of human positions, physically speaking. But we follow him into the city or town, and we see the stress of work on that strong man, and what then is his position in the death-rate of his country. In Marylebone, blacksmiths die at the rate of 31 per thousand per annum, or 11 above the mean of the male adults of the country in its entirety. The occupation, instinctive almost as a portion of human art, unobjectionable as a branch of human industry, is made by mere excess of work, the destroyer of the man. He can strike so many blows per day, walk so many steps, breathe so many breaths, produce so much work, and live an average, say of fifty years; he is made to strike so many more blows, to walk so many more steps, to breathe so many more breaths per day, and to increase altogether a fourth of his life. He meets the effort; the result is, that producing for a limited time a fourth more work, he dies at 37 for 50.¹²

4. DAY-WORK AND NIGHT-WORK. THE RELAY SYSTEM.

Constant capital, the means of production, considered from the outlook of the creation of surplus value, exists only to absorb labour, and, with every drop of labour, to absorb a proportional quantity of surplus labour. In so far as the means of production fail to do this, their mere existence involves a negative loss to the capitalist, seeing that, during the time when they lie fallow, they represent a useless advance of capital; and this loss becomes positive as soon as the fact that there has been an interruption necessitates supplementary expenditure when work is resumed. The prolongation of the working day beyond the limits of the natural day, its prolongation into the night, acts only as a palliative. It can never more than partially slake the vampire thirst for the living blood of labour. The inherent tendency of capitalist production, therefore, is towards the appropriation of labour for the whole twenty-four hours of the day. Since, however, this is physically impossible, seeing that the labour power of one and the same individual cannot be continually absorbed without intermission day and night, and night and day, this physical hindrance must be overcome by an alternation between the labour powers that are respectively consumed

¹² "Social Science Review", July 18, 1883.

by night and by day. Such an alternation can be effected in various ways. For instance, the capitalist may arrange that part of the workers are engaged on day-work one week and on night-work the next. It is well known that this relay system, this alternation between two sets of workers, was dominant during the full-blooded youth of the English cotton industry, and that at the present time it still flourishes in various places, as for instance in the spinning mills of the province of Moscow. A 24-hour process of production is still in force as a system in many of the branches of British industry that remain "free", as in blast furnaces, forges, plate-rolling mills, and other metallurgical establishments in England, Wales, and Scotland. In these cases, for the most part, the labour process persists, not only throughout the 24 hours of each one of the six weekdays, but also throughout the 24 hours of Sunday. The workers are of both sexes, and comprise children and young persons as well as adults. The children and young persons are of ages ranging from 8 (in some cases from 6) to 18.¹ In some branches of industry girls and women work at night side by side with men.²

To say nothing of the ill effects of night-work upon the human system generally,³ the persistence of the process of

¹ *Children's Employment Commission, Third Report, London, 1884*, pp. IV, V, and VI.

² "Both in Staffordshire and in South Wales, young girls and women are employed on the pit banks and on the coke heaps, not only by day but also by night. This practice has been often noticed in reports presented to parliament, as being attended with gross and notorious evils. These females employed with the men, hardly distinguished from them in their dress, and begrimed with dirt and smoke, are exposed to the deterioration of character, arising from the loss of self-respect, which can hardly fail to follow from their wretched occupation." *Op. cit.*, 194, p. XXVI.—*Cf. also Fourth Report, 1884*, 61, p. XIII.—It is the same in glassworks.

³ A steelworks owner who employs children upon night-work remarks: "It seems but natural that boys who work at night cannot sleep and get proper rest by day but will be running about." *Op. cit.*, *Fourth Report*, 63, p. XIII.—With regard to the importance of sunlight for the maintenance and growth of the body, a physician writes: "Light also acts upon the tissues of the body directly in hardening them and supporting their elasticity. The muscles of animals, when they are deprived of a proper amount of light, become soft and inelastic, the nervous power loses its tone from defective stimulation, and the elaboration of all growth seems to be perverted. . . . In the case of children, constant access to plenty of light during the day, and to the direct rays of the sun for a part of it, is most

production throughout the 24 hours without a break gives welcome opportunities for exceeding the limits of the normal working day. For instance, in the before-mentioned branches of industry, which are of an extremely arduous kind, the official working day for every worker is, as a rule, 12 hours, whether by day or by night. But, according to the words of the English official report, overwork beyond these hours is, in many cases, continued to an extent that is "truly fearful".¹

"It is impossible," the report continues, "for any mind to realise the amount of work described in the following passages as being performed by boys of from 9 to 12 years of age, . . . without coming irresistibly to the conclusion that such abuses of the power of parents and of employers can no longer be allowed to exist."²

"The practice of boys working at all by day and night turns, either in the usual course of things, or at pressing times, seems inevitably to open the door to their not unfrequently working unduly long hours. These hours are, indeed, in some cases, not only cruelly but even incredibly long for children. Amongst a number of boys it will, of course, not unfrequently happen that one or more are from some cause absent. When this happens, their place is made up by one or more boys, who work in the other turn. That this is a well understood system is plain . . . from the answer of the manager of some large rolling-mills, who, when I asked him how the place of the boys absent from their turn was made up, 'I dare say, sir, you know that as well as I do', and admitted, the fact."

essential to health. Light acts in the elaboration of good plastic blood, and hardens the fibre after it has been laid down. It also acts as a stimulus upon the organs of sight, and by this means brings about more activity in the various cerebral functions." Dr. W. Strange, senior physician to the Worcester General Hospital (from whose work on *Health*, published in 1864, the foregoing passage is taken), writes in a letter to Mr. White, a member of the Children's Employment Commission: "I have had opportunities formerly, when in Leicestershire, of observing the effects of night-work upon children, and I have no hesitation in saying, contrary to what some employers were fond of asserting, those children who were subjected to it soon suffered in their health." *Report*, 1864, p. 55.—That such a question should be open to serious dispute bears signal witness to the way in which capitalist production affects the cerebral function of capitalists and their retainers.

¹ *Op. cit.*, 37, p. XII.

² *Fourth Report*, 1863, 38, p. XII.

³ *Op. cit.*

"At a rolling-mill where the proper hours were from 6 a.m. to 5½ p.m., a boy worked about four nights every week till 8½ p.m. at least . . . and this for six months. Another, at 9 years old, sometimes made three 12-hour shifts running, and, when 10, has made two days and two nights running." A third, "now 10 . . . worked from 6 a.m. till 12 p.m. three nights, and till 9 p.m. the other nights."—"Another, now 13, . . . worked from 6 p.m. till 12 noon next day, for a week together, and sometimes for three shifts together, e.g. from Monday morning till Tuesday night."—"Another, now 12, has worked in an iron foundry at Staveley from 6 a.m. till 12 p.m. for a fortnight on end; could not do it any more."—"George Allinworth, age 9, came here as cellar-boy last Friday; next morning we had to begin at 3, so I stopped here all night. Live five miles off. Slept on the floor of the furnace, over head, with an apron under me, and a bit of a jacket over me. The two other days I have been here at 6 a.m. Ay! it is hot in here. Before I came here I was nearly a year at the same work at some works in the country. Began there, too, at 3 on Saturday morning—always did, but was very gain [near] home, and could sleep at home. Other days I began at 6 in the morning, and given over at 6 or 7 in the evening."¹

¹ Op. cit., p. XIII.—It is inevitable that the educational level of such "labour power" should be what is shown in the following conversations with one of the commentators: Jeremiah Haynes, age 12: "Four times four is 4; 4 hours are 16. A king is him that has all the money and gold. We have a king [told it is a queen], they call her the Princess Alexandra. Told that she married the queen's son. The queen's son is the Princess Alexandra. A princess is a man." William Turner, age 10: "Dog's live in England. Think it is a country, but didn't know before." John Morris, age 14: "Have heard say that God made the world, and that all the people was drowned but one; heard say that one was a little bird." William Smith, age 15: "God made man, man made woman." Edward Taylor, age 14: "Do not know of London." Henry Mathewman, age 17: "Had been to chapel, but missed a good many times lately. One name that they preached about was Jesus Christ, but I cannot say any others, and I cannot tell anything about him. He was not killed, but died like other people. He was not the same as other people in some ways, because he was religious in some ways, and others un't." (Op. cit., p. XV.) "The devil is a good person. I don't know where he lives."—"Christ was a wicked man."—"This girl spelt God as dog, and did not know the name of the queen." *Children's Employment Commission, Fifth Report, 1866*, p. 53, n. 178.—The same system as that described in the metallurgical works obtains also in glassworks and paper mills. In the latter, where

Now let us hear what the capitalists themselves think of this 24-hour system. Of course the extreme developments of the system, its abuses in the way of "cruel and incredible" extension of the working day, are passed over in silence. Capitalists only tell us about the system "in its normal form".

Messrs. Naylor & Vickers, owners of steel works, employing from 600 to 700 persons, among whom only 10 % are under 18, and of these only 20 boys under 18 work upon night-shifts, express themselves as follows: "The boys do not suffer from the heat. The temperature is probably from 86° to 90°. . . . At the forges and in the rolling-mills the hands work night and day, in relays, but all the other parts of the work are day work, i.e. from 6 a.m. to 6 p.m. In the forge, the hours are from 12 to 12. Some of the hands always work in the night, without any alternation of day and night work. . . . We do not find any difference in the health of those who work regularly by night and those who work by day, and probably people can sleep better if they have the same period of rest than if it

machine-made paper is made, night-work is the rule for all the processes except rag-sorting. In some cases night-work, provided for by relays, continues throughout the week's work, beginning on midnight every Sunday and being carried on until midnight the following Saturday. Those who are on day-work are employed for five days of 12 hours and one day of 18 hours; and those who are on night-work are employed for five nights of 12 hours and one of 6 hours—week by week. In other cases, however, the members of each shift work 24 hours consecutively on alternate days, one set working 6 hours on Monday and 18 on Saturday to make up the 24 hours. In yet other cases an intermediate system prevails, all employed in the paper mill working 15 or 16 hours every day in the week. This last system, writes Commissioner Lord, "seems to combine all the evils of both the 12 hours and the 24 hours relays". Children under 13, young persons under 18, and women, work under this night system. Sometimes, under the 12-hour system, they are obliged, when the workers of the next relay fail to turn up, to work a double shift of 24 hours. The evidence shows that boys and girls often work overtime, and that not infrequently they are engaged for 24 or even 36 hours of uninterrupted toil. Girls of 12 sometimes work the whole month through for 24 hours a day at the continuous and monotonous process of glazing, "without any regular relief or cessation beyond two or at most three breaks of half an hour each for meals". In some mills where night-work as a regular thing has been abandoned, overwork is pushed to a horrible extreme, "and that often in the dirtiest, and in the hottest, and in the most monotonous of the various process". *Children's Employment Commission, Fourth Report, 1889, pp. XXXVIII and XXXIX.*

is charged. . . . About 20 of the boys under the age of 18 work in the night sets. . . . We could not well do without lads under 18 working by night. The objection would be in the increase in the cost of production. . . . Skilled hands and the heads in every department are difficult to get, but of the lads we could get any number. . . . But from the small proportion of boys that we employ, the subject [i.e. the restrictions on night-work] is of little importance or interest to us."¹

Mr. J. Ellis, a member of the firm of Messrs. John Brown & Co., whose steel and iron works employ about 3,000 men and boys (works in which part of the operations, the iron-work and the heavier steelwork, is carried on night and day by relays), states "that in the heavier steelwork one or two boys are employed to a score or two of men". This firm employs upwards of 500 boys under 18, of whom about one third, or 170, are under the age of 13. With reference to the proposed change in the law, Mr. Ellis says: "I do not think it would be very objectionable to require that no person under the age of 18 should work more than 12 hours in the 24. But we do not think that any line could be drawn over the age of 12, at which boys could be dispensed with for night-work. But we would sooner be prevented from employing boys under the age of 13, or even so high as 14, at all, than not be allowed to employ boys that we do have at night. Those boys who work in the day sets must take their turn in the night sets also, because the men could not work in the night sets only; it would ruin their health. . . . We think, however, that night-work in alternate weeks is no harm." Messrs Naylor & Vickers, on the other hand, in conformity with the interest of their business, considered that periodically changed night-labour might possibly do more harm than continual night-labour. "We find that the men who do it are as well as the others who do other work only by day. . . . Our objections to not allowing boys under 18 to work at night, would be on account of the increase of expense, but this is the only reason." [What cynical frankness!] "We think that the increase would be more than the trade, with due regard to its being successfully carried out, could fairly bear." [What meaty-mouthed phrasenology!] "Labour is scarce here, and might fall short if there were such a regulation"—this

¹ *Fourth Report, 1863, 79, p. XVI.*

meaning that John Brown & Co. might be faced with the serious embarrassment of having to pay the full value of labour power.¹

Messrs. Cammell & Co.'s Cyclops steel and iron works are conducted on the same large scale as those of Messrs. John Brown and Co. The managing director had handed in his evidence to Commissioner White in writing, but when the manuscript was returned to him for revision he found it convenient to suppress the document. However, Mr. White has a good memory. He remembers clearly that for the Cyclops people, the prohibition of night-work for children and young persons, "would be impossible, it would be tantamount to stopping their works"—although their business has among its workers only a little more than 6 % of persons who are boys under 18, and less than 1 % of boys who are under 13.²

On the same topic, Mr. E. F. Sanderson, of the firm of Sanderson Bros. & Co., steel rolling-mills and forges, Attercliffe, says: "Great difficulty would be caused by preventing boys under 18 from working at night. The chief would be the increase of cost from employing men instead of boys. I cannot say what this would be, but probably it would not be enough to enable the manufacturers to raise the price of steel, and consequently it would fall on them, as of course the men would refuse to pay it." Cross-grained folk these workers, are they not? Mr. Sanderson, continuing, does not know how much he pays the children, but, "perhaps the younger boys get from 4s. to 5s. a week. . . . The boys' work is of a kind for which the strength of the boys is generally" [not always, in particular cases] "quite sufficient, and consequently there would be no gain in the greater strength of the men to counterbalance the loss, or it would be only in the few cases in which the metal is heavy. The men would not like so well not to have boys under them, as men would be less obedient. Besides, boys must begin young to learn the trade. Leaving day-work alone open to boys would not answer this purpose". Why not? Why cannot boys learn their handicraft in the day-time? Listen to the reason. "Owing to the men working days and nights in alternate weeks, the men would be separated half the time from their boys, and would lose half the profit which they make from them. The training

¹ *Op. cit.*, *ib.*, p. XVI.

² *Op. cit.*, *ib.*, p. XVII.

which they give to an apprentice is considered as part of the return for the boy's labour, and thus enables the men to get it at a cheaper rate. Each man would want half of this profit." In other words, Messrs. Sanderson would have to pay part of the wages of the grown men out of their own pockets, instead of paying it with the boys' night-work. The firm's profit would be somewhat reduced, and this is the worthy Sanderson's reason for saying that boys cannot learn their trade in the daytime.* Besides, the change would impose upon the grown men night-work which is now done by the boys, and the men would not be able to endure it. In a word, the difficulties would be so great that they would probably lead to the complete cessation of night-work. "As far as the work itself is concerned," says E. F. Sanderson, "this would suit as well, but . . ." But it is not only a question of doing the work; Messrs. Sanderson have something more in view than merely making steel. For them, the making of steel is no more than a pretext for the making of surplus value. The smelting furnaces, the rolling-mills, the buildings, the machinery, the iron, the coal, etc., have something to do besides transforming themselves into steel. They are there to absorb surplus labour, and naturally they could absorb more in 24 hours than in 12. The fact is that, in accordance with laws both divine and human, they give the Sandersons a lien upon the labour time of a certain number of hands for the full 24 hours of the day. When their function of absorbing labour is interrupted, they forfeit their character as capital during the period of interruption, and are, therefore, a pure loss to the Sandersons. "But then there would be the loss from so much expensive machinery, lying idle half the time, and to get through the amount of work which we are able to do on the present system, we should have to double our premises and plant, which would double the outlay." Still, why should these Sandersons claim a privilege as compared with the other capitalists, who can only run their plant in the daytime, and whose buildings, machinery, and raw materials must therefore

* "In our age, so fond of reflecting and reasoning, a man is not worth much who cannot give a good reason for everything—how-ever bad and however absurd the reason may be. Everything that has been done since in the world, has been done since for excellent reasons." Hegel, *op. cit.*, p. 242.

lie fallow at night? E. F. Sanderson answers the question as follows, in the name of all the Sandersons: "It is true that there is this loss from machinery lying idle in those manufactories in which work only goes on by day. But the use of furnaces would involve a further loss in our case. If they were kept up, there would be a waste of fuel" [instead of, as now, a waste of the living substance of the workers], "and if they were not, there would be loss of time in laying the fires and getting the heat up" [whereas the loss of sleep even for children of 8, is a gain of labour time for the tribe of Sanderson], "and the furnaces themselves would suffer from the changes of temperature." The furnaces, on the other hand, do not suffer at all because of the morning and evening changes in the shifts of labour.*

* *Op. cit.*, *Op.*, p. XVII.—The owners of glassworks are affected with like tender scruples when they tell us that the provision of regular meal times for the children employed is impossible, seeing that, if there were such intervals, a certain amount of heat radiated by the furnaces would be "a pure loss", or "wasted". Commissioner White has an answer ready. He is not like Ure, Senior, etc., and their petty German plagiarists of Roemer's type, whose hearts are touched by the "abstemious", "self-denial", "thrift", of the capitalists in the expenditure of money, and by the "lavishness" worthy of Tamara's which these same capitalists display in their expenditure of human life. Mr. White says: "A certain amount of heat beyond what is used at present might also be going to waste, if meal times were secured in these cases, but it seems likely not equal in money value to the waste of animal power now going on in glass-houses throughout the kingdom from growing boys not having enough quiet time to eat their meals at ease, with a little rest afterwards for digestion." *Op. cit.*, p. 45.—This was in the "year of progress" 1883! To say nothing of the expenditure of energy upon lifting and carrying, a child employed in the sheds where bottle glass and flat glass are made has, during the performance of his work, to walk from 15 to 20 miles in 6 hours! And the work often lasts for 14 or 15 hours! In many of these glass-works, as in the Moscow spinning mills, a system of 6-hour relays is in force. "During the working part of the week, 6 hours is the strictest unbroken period ever attained at any one time for rest, and out of this has to come the time spent in coming and going to and from work, washing, dressing, and meals, leaving a very short period indeed for rest, and none for fresh air and play unless at the expense of sleep necessary for young boys especially at such hot and fatiguing work. . . . Even the short sleep is obviously liable to be broken by a boy having to wake himself if it is night, or by the noise if it is day." Mr. White mentions cases in which a youngster worked for 36 hours at a stretch; others in which boys of 12 after toiling until 3 in the morning, had 3 hours' sleep in the works, then to resume their labours! "The amount of work," say Trevelyan and Tufnell,

5. STRUGGLE FOR A NORMAL WORKING DAY. LAWS TO ENFORCE THE EXTENSION OF THE WORKING DAY, PASSED FROM THE MIDDLE OF THE FOURTEENTH TO THE END OF THE SEVENTEENTH CENTURY.

"What is a working day? What is the length of time during which capital is entitled to consume the labour power whose daily value it pays for? How long can the working day be extended beyond the labour time necessary for the reproduction of labour power itself?" We have seen what is capital's answer to these questions. "The working day," runs the answer, "comprises the full 24 hours of the natural day, with the deduction of the few hours of rest without which labour power absolutely refuses to renew its services." Obviously, therefore, throughout his working life, the worker is to be nothing but labour power; all his available time is, by nature and by law, to be labour time, is to be devoted to promoting the self-expansion of capital. Time for education, for intellectual development, for the fulfilment of social functions, for friendly intercourse, for the free play of physical and mental forces, Sunday rest (even though he lives in a sabbatarian country)*

who drafted the general report. "done by boys, youths, girls, and women, in the course of their daily or nightly spell of labour, is certainly extraordinary." Op. cit., XLIII and XLIV.—Meanwhile, perhaps, late in the evening, "abstinent" Mr. Glass Capital, half-masquerade with port wine, leaves his club to feel homeward, returning with idyllic self-satisfaction: "Erelong never, never, never shall be slaves!"

* In England, even now, it occasionally happens in the rural districts that a labourer is sentenced to imprisonment for desecrating the sabbath by working in his own little plot of garden. But should a worker fail to turn up at the metal works, the paper mill, or the glassworks on Sunday, even if he is actuated by religious whimsies, he will be punished for breach of contract. The puritanism of orthodox believers will not countenance complaints of sabbath-breaking when the sabbath is broken in order to further the process of expanding capital. In August 1869, the London workers engaged in fish and poultry shops asked for the abolition of Sunday labour. Their memorial stated that on weekdays they worked on an average 15 hours a day, and were then expected to work from 8 to 10 hours on Sunday. The memorialists declared that certain among the aristocratic hypocrites of Exeter Hall, having a taste for delicate fare, encouraged "Sunday labour". These "saints", very keen on looking after themselves, show their Christianity by the hostility with which they bear the overwork, the privations, and the hunger of others. To paraphrase *Housser* (*Sources*, II, 104): "It would ruin them to be tender-hearted towards the gnawing of hunger in the workers' bellies!"

—all so much moonshine. In its blind, unbidded passion, its werewolf hunger for surplus labour, capital is not content to overstep the moral restrictions upon the length of the working day. It oversteps the purely physical limitations as well. It usurps the time needed for the growth, the development, and the healthy maintenance of the body. It steals the time essential for the consumption of fresh air and sunshine. It higgles over a meal time, incorporating this whenever possible with the process of production, so that the worker receives his food only as one of the means of production, just as coal is supplied to heat the boiler, and lubricating oil to facilitate the running of the machinery. The workers' hours of sleep, of what should be healthy sleep for the collection, renewal, and refreshment of the vital powers, become a spell of so many hours of torpor as are essential to the temporary revival of an utterly exhausted organism. Whereas the length of the working day should be restricted by a consideration of how much intermission from work is indispensable for the normal maintenance of labour power, we find, on the other hand, that consideration as to what is the greatest possible daily expenditure of labour power, no matter how morbidly forced and how distressing the operation of this labour power may be, is to determine the limits of the workers' period of rest. Capital does not enquire how long the embodiment of labour power is likely to live. Its only interest is in ensuring that a maximum amount of labour power shall be expended in one working day. It attains this end by shortening the worker's life, just as a greedy farmer secures a greater immediate return from the soil by robbing the soil of its fertility.

Capitalist production, which, in essence, is the production of surplus value, the absorption of surplus labour, achieves the prolongation of the working day by simultaneously bringing about the deterioration of human labour power, which is robbed, alike on the moral and on the physical plane, of normal conditions of development and function. It causes the premature exhaustion and death of labour power.¹ It prolongs the worker's period of pro-

¹ "We have given in our previous reports the statements of several experienced manufacturers to the effect that over-labour . . . certainly tend prematurely to exhaust the working powers of the men." *Op. cit.*, *ib.*, p. XIII.

duction during a given time of his life, by shortening his life as a whole.

But the value of labour power includes the value of the commodities which are necessary for the reproduction of the worker, or for the propagation of the working class. Consequently, if the unnatural extension of the working day (which capital, in its unbridled passion for self-expansion, necessarily strives to bring about) shortens the life of the individual worker, and therefore reduces the duration of his labour power, then the forces that are used up have to be replaced at a more rapid rate, and the sum of the expenses necessary for the reproduction of labour power will be greater; just as in a machine the part of its value to be reproduced every day is greater in proportion to the rapidity with which the machine is worn out. It would seem, therefore, that in its own interest capital must favour the establishment of a normal working day.

The slave owner buys his workers as he buys his horses. Should he lose a slave, he loses part of his capital, a part which has to be replaced by further expenditure in the slave market. However, "the rice-grounds of Georgia, or the swamps of the Mississippi may be fatally injurious to the human constitution; but the waste of human life which the cultivation of these districts necessitates, is not so great that it cannot be repaired from the teeming preserves of Virginia and Kentucky. Considerations of economy, moreover, which, under a natural system, afford some security for humane treatment by identifying the master's interest with the slave's preservation, when once trading in slaves is practised, become reasons for racking to the uttermost the toil of the slave; for, when his place can at once be supplied from foreign preserves, the duration of his life becomes a matter of less moment than its productiveness while it lasts. It is accordingly a maxim of slave management, in slave-importing countries, that the most effective economy is that which takes out of the human chattel in the shortest space of time the utmost amount of exertion it is capable of putting forth. It is in tropical culture, where annual profits often equal the whole capital of plantations, that negro life is most recklessly sacrificed. It is the agriculture of the West Indies, which has been for centuries prolific of fabulous wealth, that has engulfed millions of the African race. It is in

Cuba, at this day, whose revenues are reckoned by millions, and whose planters are princes, that we see in the servile class the coarsest fare, the most exhausting and unremitting toil, and even the absolute destruction of a portion of its numbers every year'.¹

The cap fits. For "slave trade", read "labour market"; for "Kentucky and Virginia", read "Ireland and the agricultural districts of England, Scotland, and Wales"; for "Africa", read "Germany"! We have been told how overwork thins the ranks of the London bakers. Nevertheless, the London labour market is always overstocked with German and other candidates for death in the bakehouses. We know, too, that few workers are so short-lived as the potters. Is there any lack of recruits in the pottery industry? Josiah Wedgwood, the inventor of modern pottery, himself to begin with an ordinary workman, said in 1783 in the House of Commons that the number of persons employed in this trade ranged from 15,000 to 20,000.² In the year 1861, the population of the urban centres of this industry in Great Britain numbered 101,302. "The cotton trade has existed for ninety years. . . . It has existed for three generations of the English race, and I believe I may safely say that during that period it has destroyed nine generations of factory operatives."³

No doubt, in certain epochs of feverish activity there are considerable gaps in the labour market. This happened, for instance, in 1834, but the factory owners hastened to propose to the poor-law commissioners that they should send the "surplus population" of the agricultural districts to the north, for, said the industrialists, "the manufacturers would absorb and use it up".*—"Agents were appointed with the consent of the poor-law commissioners. . . . An office was set up in Manchester, to which lists were sent of those workpeople in the agricultural districts wanting employment, and their names were registered in books. The manufacturers attended at these offices, and selected such persons as they chose; when they had selected such persons as their

¹ Cairnes, *The Slave Power*, pp. 110-111.

² John Ward, *History of the Borough of Stoke-upon-Trent*, London, 1843, p. 42.

³ Perrard, Speech in the House of Commons, April 27, 1863.

* "Those were the very words used by the cotton manufacturers." *Ibid.*

'wants required', they gave instructions to have them forwarded to Manchester, and they were sent, ticketed like bales of goods, by canals, or with carriers, others tramping on the road, and many of them were found on the way lost and half-starved. This system had grown up into a regular trade. This House will hardly believe it, but I tell them, that this traffic in human flesh was as well kept up, they were in effect as regularly sold to these [Manchester] manufacturers as slaves are sold to the cotton grower in the United States. . . . In 1860, 'the cotton trade was at its zenith'. . . . The manufacturers again found that they were short of hands. . . . They applied to the 'flesh agents', as they are called. Those agents sent to the southern downs of England, to the pastures of Dorsetshire, to the glades of Devonshire, to the people tending kine in Wiltshire, but they sought in vain. The surplus population was 'absorbed'. On the completion of the French treaty, the "Bury Guardian" said that "10,000 additional hands could be absorbed by Lancashire, and that 30,000 or 40,000 will be needed". After the "flesh agents and sub-agents" had made a vain search in the agricultural districts, "a deputation came up to London, and waited on the Rt. Hon. Gentleman" [Mr. Villiers, President of the Poor Law Board] "with a view of obtaining poor children from certain union houses for the mills of Lancashire".¹

* *Id.*—Mr. Villiers, despite the best will in the world, was "legally" compelled to refuse the factory owners' request. These gentlemen, however, were able to gain their end thanks to the obligingness of the local poor-law authorities. Factory Inspector Rodgrave declares that on this occasion the system under which orphans and pauper children were "legally" treated as apprentices "was not accompanied with the old abuses" (concerning which, consult Engels, *op. cit.*). But in one case, says Rodgrave, there certainly was "abuse of this system in respect to a number of girls and young women brought from the agricultural districts of Scotland into Lancashire and Cheshire". Under this "system", the factory owner entered into a contract with the poor-law authorities for a definite period. During that term, he fed, clothed, and lodged the children, and gave them a small allowance in money. The passage I am about to quote from Mr. Rodgrave is a remarkable one when we remember that the year 1860 stands out among even the most prosperous years of the English cotton trade, and also that wages were exceptionally high at this time because labour was scarce. The exceptional demand for labour coincided with the depopulation of Ireland, with unprecedented emigration from the English and Scottish agricultural districts to Australia and America, and with an absolute decrease in population in some of the English agricultural

The general experience of capitalists is that overpopulation is persistent—this meaning overpopulation in relation to the momentary requirements of capital in the matter of labour to promote its self-expansion. But such an excess of population is made up of generations of human beings who are stunted, short-lived, replacing one another swiftly, plucked so to say before they are ripe.¹ On the other hand, no intelligent observer can fail to see that capitalist production (though, historically considered, it dates but from yesterday) has already sapped the vital energy of the people at the root; that the degeneration of the industrial population is only kept in check by the continuous absorp-

districts, this decline being partly due to an actual breakdown in the vital force of the agricultural workers, and partly to the fact that the dealers in human flesh had already exhausted the supply of available population. Nevertheless we learn from Mr. Redgrave "This kind of labour, however, would only be sought after when none other could be procured, for it is a high-priced labour. The ordinary wages of a boy of 15 would be about 4s. per week; but to lodge, to clothe, to feed, and to provide medical attendance and proper superintendence, for 50 or 100 of these boys, and to set aside some remuneration for them, could not be accomplished for 4s. a head per week." *Reports of Inspectors of Factories*, April 30, 1860, p. 27.—Mr. Redgrave forgets to tell us how the worker is himself able to provide all these amenities for his children out of their wages of 4s. per head, when the factory owner can do it for 50 or 100 youngsters who are lodged, boarded, and superintended in common.—To guard against the risk that false impressions may be drawn from the text, I should also add that the English cotton industry, since the extension of the Factory Act of 1830 to this domain (and the consequent regulation of working hours, etc., in the cotton trade), must be regarded as the model industry of England. The English cotton operative is in every respect better off than his continental brother. "The Prussian factory operative labours at least 10 hours per week more than his English competitor, and if employed at his own loom in his own house, his labour is not restricted to even those additional hours." *Reports of Inspectors of Factories*, October 1853, p. 103.—After the industrial exhibition of 1851, Redgrave, the before-mentioned factory inspector, travelled on the Continent, especially in France and Germany, to enquire into working conditions in continental factories. Of the Prussian factory worker, the inspector writes: "He receives a remuneration sufficient to prepare the simple fare, and to supply the slender comforts, to which he has been accustomed. . . . He lives upon his coarse fare, and works hard, wherein his position is subordinate to that of the English operative." *Reports of Inspectors of Factories*, October 31, 1853, p. 85.

¹ "The overworked die off with strange rapidity; but the places of those who perish are instantly filled, and a frequent change of persons makes no alteration in the scene." E. G. Wakefield, *England and America*, London, 1833, vol. I, p. 35.

tion of fresh and vigorous elements from the rural districts; and that even the agricultural workers, though they live in the open air, and though the formidable and universally operative principle of natural selection is at work among them to maintain their stock out of the most powerful specimens, are already passing into a phase of incipient decay.¹ The capitalists have such good reason for deying the suffering of the legions of workers who surround them, that in practice they are no more moved by the prospect of the coming degeneration and final disappearance of the human race than they are disturbed by the prospect that the earth may one day fall into the sun. When there is a boom on the stock exchange, every one who takes part in the swindle knows that sooner or later the crash will come, but each man hopes that the disaster will involve his neighbours, after he himself has taken safe shelter with a goodly share of loot. "After me, the deluge!" is the watchword of every capitalist and of every capitalist nation. Capital, therefore, is reckless as regards illness or premature death of the workers, unless forced to pay heed to these matters, forced by social compulsion.² When complaints are voiced regarding physical and mental degeneration, early death, and the tortures of overwork, the capitalists answer: "Why should these things trouble us, since they increase

¹ Cf. *Public Health, Sixth Report of the Medical Officer of the Privy Council*, 1883, London, 1884. This report deals especially with the agricultural workers. "Sutherland . . . is commonly represented as a highly improved country, . . . but . . . recent enquiry has discovered that even there, in districts once famous for fine men and gallant soldiers, the inhabitants have degenerated into a mongrel and stunted race. In the healthiest situations, on hill-sides facing the sea, the faces of their famished children are as pale as they could be in the foul atmosphere of a London alley." W. T. Thornton, *Overpopulation and its Remedy*, pp. 24-25.—The Sutherlanders, in fact, resemble the 30,000 "palest Highlanders" who are packed into "the wynds and closes of Glasgow", as bedfellows of prostitutes and thieves.

² "But though the health of a population is so important a factor of the national capital, we are afraid it must be said that the class of employers of labour have not been the most forward to guard and cherish this treasure, . . . The consideration of the health of the operatives was forced upon the mill owners." "*Times*", November 3, 1881.—"The men of the West Riding became the clothiers of Scotland: . . . the health of the workpeople was sacrificed, and the race in a few generations must have degenerated. But a reaction set in, Lord Shaftesbury's Bill limited the hours of children's labour." *Report of the Registrar General*, October 1881.

our profits?" From a broad outlook, however, such matters do not depend upon the good will or the evil will of individual capitalists. Owing to free competition, the immanent laws of capitalist production hold sway irresistibly over every individual capitalist.¹

The establishment of a normal working day is the outcome of centuries of struggle between capitalist and worker. The history of this struggle shows two conflicting trends. Compare, for instance, the British factory legislation of our own time with the English Labour Statutes from the fourteenth century to well on into the middle of the eighteenth century.² Whereas modern factory legislation curtails the working day by legal compulsion, the Labour Statutes were designed to lengthen it compulsorily. Of course the claims put forward by capital in its infant state when it has only just come into being—when it cannot secure a sufficiency of surplus labour by the mere force of economic circumstances, but only with the aid of State power can establish its right to absorb surplus labour—these early claims seem modest in comparison with the

¹ That is why, to take one instance, we find that, in the beginning of 1813, twenty-six firms owning extensive potteries in Staffordshire, and among them the firm of Josiah Wedgwood & Sons, sent in a memorial demanding "some legislative enactment". They said that competition with other capitalists made it impossible for them "voluntarily" to impose limits upon the working hours of children, etc. "Much as we deplore the evils before-mentioned, it would not be possible to prevent them by any scheme of agreement between the manufacturers. . . . Taking all these points into consideration, we have come to the conviction that some legislative enactment is wanted." *Children's Employment Commission, First Report, 1863*, p. 322.—A more recent and far more striking instance may be mentioned. During a period of feverish activity in the cotton trade, a rise in the price of cotton had led the owners of textile factories in Blackpool to shorten the hours worked in their factories. This was arranged by mutual consent, for a definite period, which was to terminate in the end of November 1875. Meanwhile the wealthier factory owners, who had spinning mills as well as weaving mills, took advantage of the falling-off in production which resulted from this agreement, to extend their businesses, and thus to make vast profits at the expense of lesser firms. Thereupon the latter, in their extremity, appealed to the factory operatives, urging these to agitate on behalf of a 9-hour day, and offering to subscribe funds in support of the agitation!

² The Labour Statutes (which can be paralleled by enactments in France, the Netherlands, etc., at the same date) were not formally repealed in England until 1813, although changes in the method of production had rendered them obsolete long before.

concessions which it is reluctantly forced to make in its maturity. Centuries must pass ere the "free" worker, under stress of the developed method of capitalist production, voluntarily agrees (i.e. is compelled by social conditions) to sell the whole of his active life, his very capacity for labour, his birthright, for a mess of pottage. It is natural, therefore, that the extension of the working day which, between the middle of the fourteenth and the end of the seventeenth century, capital was, with State aid, endeavouring to force upon adult workers, should approximately correspond in extent with the limitations of working hours which, in the latter half of the nineteenth century, the State was obliged here and there to prescribe in order to prevent the coming of children's blood into capital. That which, for instance, in the State of Massachusetts (until recently the "freest" State in the North American Republic) has to-day been proclaimed as the statutory limit of the working hours of children under 12, was in England, even in the middle of the seventeenth century, the normal working day of able-bodied manual workers, robust agricultural labourers, and sturdy blacksmiths.*

The first Statute of Labourers (23 Edward III, 1349) had as its immediate pretext (not its cause, for such legislation continued for centuries after the pretext had ceased to exist) the Black Death which had decimated the population so effectually that, as a Tory writer says: "The difficulties of getting men to work on reasonable terms" [the author means, at a price which would leave their employers a "reasonable" quantity of surplus labour] "grew to such a

* "No child under the age of 12 years shall be employed in any manufacturing establishment more than 10 hours in one day." *General Statutes of Massachusetts*, 83, cap. 12. These statutes were issued between 1896 and 1898.—"Labour performed during a period of 10 hours on any day in all cotton, woollen, silk, paper, glass, and flax factories, or in manufactories of iron and brass, shall be considered a legal day's labour. And be it enacted that hereafter no infant engaged in any factory shall be hindered or required to work more than 10 hours in any day, or 60 hours in any week; and that hereafter no minor shall be admitted as a worker under the age of 14 years in any factory within this State." *State of New Jersey, an Act to limit the Hours of Labour, etc.*, 61 and 62, Law of March 17, 1893. "No minor who has attained the age of 12 years, and is under the age of 15 years, shall be employed in any manufacturing establishment more than 11 hours in any one day, nor before 5 o'clock in the morning, nor after 7.30 in the evening." *Revised Statutes of the State of Rhode Island*, cap. 92, § 23, July 1, 1893.

height as to be quite intolerable."¹—"Reasonable" wages were, therefore, fixed by law, and the limits of the working day were also prescribed. The length of the working day, the only matter with which we are at the moment concerned, was again fixed by the statute passed in 1496, when Henry VII was on the throne. According to this statute (which remained a dead letter) the working day for all artificers and field labourers from March to September was to last from 5 in the morning to between 7 and 8 in the evening. Breaks were allowed for meals, 1 hour for breakfast, 1½ hours for dinner and ¾ an hour for a snack in the afternoon—these intervals amounting to a sum double that prescribed by the extant Factory Act.² In winter, work was to last from 5 in the morning until dark, with the same intervals. By a statute of Elizabeth passed in 1562, no change was made in the length of the working day for labourers "hired for daily or weekly wage", but an attempt was made to limit the total intervals to 2½ hours in summer and 2 hours in winter. Dinner was only to last 1 hour, and the "afternoon sleep of half an hour" was only allowed between the middle of May and the middle of August. For every hour of absence one penny was to be subtracted from the wage. In actual practice, however, the workers got much better conditions than those prescribed by the statute book. William Petty, the father of political economy, and to some extent the founder of statistics, writing in the last third of the seventeenth century, says: "Labouring men [field labourers] work 10 hours per diem, and make 20 meals per week, viz., 3 a

¹ *Sophisms of Free Trade*, seventh edition, London, 1890, p. 203; sixth edition, p. 255.—The same writer, however, admits that "Acts of Parliament regulating wages, but against the labourer and in favour of the master, lasted for the long period of 404 years. Population grew. These laws were then found, and really became, unnecessary and burdensome." *Ibid.*, p. 206.

² In reference to this statute, J. Wade justly remarks: "From the statement above, it appears that in 1496, the diet was considered equivalent to one third of the income of an artificer and one half the income of a labourer, which indicates a greater degree of independence among the working classes than prevails at present; for the board, both of labourers and artificers, would now be reckoned at a much higher proportion of their wages." *History of the Middle and Working Classes*, pp. 24, 25, and 377.—The view that this difference depends upon a change in the relative prices of food and clothing cannot be held by any one who has taken even a cursory glance at Bishop Fleetwood's *Chronicle prices*, etc., first edition, London, 1797; second edition, London, 1793.

day for working days, and 2 on Sundays; whereby it is plain, that if they could fast on Friday nights and dine in one hour and a half, whereas they take two, from eleven to one; thereby working $\frac{1}{20}$ more and spending $\frac{1}{20}$ less, the above-mentioned [tax] might be raised."¹ Was not Dr. Andrew Ure right in decrying the Twelve Hours Bill of 1833 as a relapse into the age of darkness? It is true that the regulations in the statute mentioned by Petty apply to apprentices as well as to adults. But how things stood in the matter of child labour as late as the end of the seventeenth century, can be learned from the following complaint: "Tis not their practice [in Germany] as with us in this kingdom to bind an apprentice for seven years; three or four is their common standard: and the reason is because they are educated from their cradle to something of employment, which renders them the more apt and docile, and consequently the more capable of attaining to a ripeness and quicker proficiency in business. Whereas our youth, here in England, being bred to nothing before they come to be apprentices, make a very slow progress and require much longer time wherein to reach the perfection of accomplished artists."²

¹ *Political Anatomy of Ireland*, 1872, 1892 edition, p. 20, *Forbes Sapinech* (an appendix on taxation).

² *A Dissertation concerning Mechanic Industry* [Collection of State Tracts Published during the Reign of King William III. London, 1708, vol. II, pp. 120 et seq.], 1889.—Macaulay, who has duly lauded English history in the whig and bourgeois interest, is responsible for the following diatribe: "The practice of setting children prematurely to work . . . prevailed in the seventeenth century to an extent which, when compared with the extent of the manufacturing system, seems almost incredible. At Norwich, the chief seat of the clothing trade, a little creature of six years old was thought fit for labour. Several writers of that time, and among them some who were considered as eminently benevolent, mention, with exultation, the fact that, in that single city, boys and girls of very tender age create wealth exceeding what was necessary for their own subsistence by twelve thousand pounds a year. The more carefully we examine the history of the past, the more reason shall we find to dissent from those who imagine that our age has been fruitful of new social evils. . . . That which is new is the intelligence and the humanity which remedies them." *History of England*, vol. I, pp. 219-220.—Macaulay might have reported, in addition, that "extremely well-disposed" friends of commerce, in the seventeenth century, whose "with exultation" how in a Dutch pothouse a child of four was set to work, and that this

Throughout the greater part of the eighteenth century, down to the period when large-scale industry began, capital in England had not yet succeeded in getting possession of the whole of the worker's week in return for the payment of the weekly value of his labour power—excepting in the case of the agricultural labourers. The fact that they could live for a whole week upon the wages of four days did not seem to the workers any reason why they should work the other two weekdays for the capitalist. One section of English economists, writing in the interests of capital, denounced this obstinacy in the most savage terms; another section defended the workers. Listen, for instance, to the dispute between Postlethwayt (whose *Dictionary of Trade* had in those days as wide a reputation as have the kindred works of McCulloch and McGregor to-day), and the previously quoted author of the *Essay on Trade and Commerce*.¹

This is what Postlethwayt has to say: "We cannot put an end to those few observations, without noticing that trite remark in the mouth of too many; that if the industrious

example of "the practice of virtue" passes review in all homoeopathic books of the Macaulay type down to the days of Adam Smith. It is true that with the substitution of manufacture for handicraft, traces of the exploitation of children began to show themselves—though such exploitation has always existed among the peasant folk, to an extent proportional with the weight of the yoke pressing upon the husbandman. The tendency of capital is in this respect unmistakable, but instances of the manifestation of the tendency are as rare as two-headed children. That is why the far-seeing "friends of commerce" regard them "with excitement" as especially worthy of note and admiration, and commend them to their contemporaries and to posterity. This same Macaulay, the Scottish syphilis and target declaimer, writes: "We hear to-day only of retrogression, and see only progress." What eyes, and especially what ears!

¹ The anonymous author of this essay is one of the fiercest in his denunciations of the workers. He had taken the same line in an earlier book, *Considerations on Taxes*, London, 1763. Polonais Arthur Young, the famous statistical prettler, is another of the same kidney.—Among those who defend the workers, the most notable are Jacob Vanderlint, *Money matters all Things*, London, 1774; the Rev. Nathaniel Foster, D.D., *An Inquiry into the Causes of the Present Price of Provisions*, London, 1766; Dr. Price; and, in especial, Postlethwayt, in a supplement to his *Universal Dictionary of Trade and Commerce*, and also in *Great Britain's Commercial Interest Explained and Improved*, second edition, London, 1770. The facts of the case will be found in the works of many other contemporary writers, among whom I may mention Josiah Tucker.

poor can obtain enough to maintain themselves in five days, they will not work the whole six. Whence they infer the necessity of even the necessities of life being made dear by taxes, or any other means, to compel the working artisan and manufacturer to labour the whole six days in the week, without ceasing. I must beg leave to differ in sentiment from those great politicians, who contend for the perpetual slavery of the working people of this kingdom; they forget the vulgar adage all work and no play. Have not the English boasted of the ingenuity and dexterity of her working artists and manufacturers which have heretofore given credit and reputation to British wares in general? What has this been owing to? To nothing more probably than the relaxation of the working people in their own way. Were they obliged to toil the year round, the whole six days in the week, in a repetition of the same work, might it not blunt their ingenuity, and render them stupid instead of alert and dexterous; and might not our workmen lose their reputation instead of maintaining it by such eternal slavery? . . . And what sort of workmanship could we expect from such hard-driven animals? . . . Many of them will execute as much work in four days as a Frenchman will in five or six. But if Englishmen are to be eternal drudges, 'tis to be feared they will degenerate below the Frenchmen. As our people are famed for bravery in war, do we not say that it is owing to good English roast beef and pudding in their bellies, as well as their constitutional spirit of liberty? And why may not the superior ingenuity and dexterity of our artists and manufacturers be owing to that freedom and liberty to direct themselves in their own way, and I hope we shall never have them deprived of such privileges and that good living from whence their ingenuity no less than their courage may proceed."¹

The author of the *Essay on Trade and Commerce* replies in the following terms: "If the making of every seventh day an holiday is supposed to be of divine institution, as it implies the appropriating the other six days to labour" [he means to "capital" as we shall soon see] "surely it will not be thought cruel to enforce it. . . . That mankind in general are naturally inclined to ease and indolence, we fatally experience to be true, from the conduct of our

¹ *First Preliminary Discourse in the Dictionary of Trade*, p. 14.

manufacturing populace, who do not labour, upon an average, above four days in a week, unless provisions happen to be very dear. . . . Put all the necessities of the poor under one denomination; for instance, call them all wheat, or suppose that . . . the bushel of wheat shall cost five shillings and that he" [the worker] "earns a shilling by his labour, he then would be obliged to work five days only in a week. If the bushel of wheat should cost but four shillings, he would be obliged to work but four days; but as wages in this kingdom are much higher in proportion to the price of necessaries. . . . the manufacturer [worker], who labours four days, has a surplus of money to live idle with the rest of the week. . . . I hope I have said enough to make it appear that the moderate labour of six days in a week is no slavery. Our labouring people do this, and to all appearance are the happiest of all our labouring poor,¹ but the Dutch do this in manufactures, and appear to be a very happy people. The French do so, when holidays do not intervene.² But our populace have adopted a notion, that as Englishmen they enjoy a birth-right privilege of being more free and independent than in any country in Europe. Now this idea, as far as it may affect the levity of our troops, may be of some use; but the less the manufacturing poor have of it, certainly the better for themselves and for the State. The labouring people should never think themselves independent of their superiors. . . . It is extremely dangerous to encourage mobs in a commercial State like ours, where, perhaps, seven parts out of eight of the whole are people with little or no property. The cure will not be perfect, till our manufacturing poor are contented to labour six days for the same sum which they now earn in four days."³ With this end in view, and for the purpose of "extirpating idleness,

¹ The author, on p. 96, himself throws light on the elements of this happiness enjoyed by English agricultural labourers as early as 1770, for he says: "Their powers are always upon the stretch; they cannot live cheaper than they do, nor work harder."

² Protestantism by abolishing all the traditional festivals, and transforming them into ordinary working days, played an important part in the genesis of capital.

³ *Op. cit.*, pp. 11, 41, 96, 97, 55, 57, and 60.—As early as 1734, Jacob Vanderlint declared that the secret of the capitalist outcry concerning the distastefulness of the working folk was simply this, that the employers wanted the workers to give six days' labour for four days' wages.

debauchery, and excess", of promoting a spirit of industry, of "lowering the price of labour in our manufactories and easing the lands of the heavy burden of poor's rates", our faithful champion of capital advocates a well-tried means. The workers who become dependent on public support, paupers in a word, are to be confined in "an ideal workhouse". Such an ideal workhouse must be made "a House of Terror", and not an asylum for the poor, not a place "where they are to be plentifully fed, warmly and decently clothed, and where they do but little work". In this "House of Terror", this "ideal workhouse", the poor "shall work 14 hours in a day, allowing proper time for meals, in such manner that there shall remain 12 hours of neat labour".¹ Our author remarks elsewhere: "The French laugh at our enthusiastic ideas of liberty".²

Twelve working hours daily in an "ideal workhouse", in a "House of Terror". Such was a proposal made in 1790! Sixty-three years later, in 1853, when in four branches of industry the working day for children at ages ranging from 13 to 18 was by legal enactment reduced to 12 full working hours, a clamour was raised as if the knell of doom had sounded for English industry. In 1852, when Louis Bonaparte tried to strengthen his position with the bourgeoisie by tampering with the legally established working day, the French workers cried with one voice: "The law which restricts the working day to 12 hours is the one good thing which remains to us from the legislation of the republic."³ In Zurich, the law limits the working hours of children over 10 years of age to 12. In Aargau, in the year 1862, the working hours of children between 13 and 16 years of

¹ *Op. cit.*, p. 242.

² *Op. cit.*, p. 78.

³ "They especially objected to work beyond the 12 hours per day because the law which fixed those hours is the only good which remains to them of the legislation of the republic" *Reports of Inspectors of Factories*, October 31, 1852, p. 80.—The French Twelve Hours Law of September 3, 1850, a bourgeois edition of the decree issued by the Provisional Government of March 2, 1848, applies to all workshops without exception. Before the passing of this law, the working day in France had known no limitations. In factories, it lasted 14, 15, and even more hours. Cf. *Des classes ouvrières en France pendant l'année 1848*, by A. Blanqui Moncaur Blanqui (the economist Adolphe Blanqui, to be distinguished from his younger brother Louis Auguste Blanqui, the revolutionist) was commissioned by the government to make an enquiry into working class conditions.

age were reduced from 12½ hours to 12; and in Austria, in the year 1850, for children between the ages of 12 and 16 years, the hours were also reduced to 12.¹ "What immense progress since 1770!" Macaulay would exultingly exclaim.

The "House of Terror" for paupers, of which capitalists were already dreaming in 1770, came into existence a few years later in the shape of a gigantic Workhouse for the industrial workers. It was called a factory. The ideal paled before the reality.

6. STRUGGLE FOR A NORMAL WORKING DAY (continued). LEGAL RESTRICTION OF THE HOURS OF LABOUR. BRITISH FACTORY LEGISLATION FROM 1833 TO 1864.

After capital had needed centuries in order to extend the working day to its normal maximum limit, and then beyond this to the limit of the natural day of 12 hours,² there followed, when large-scale industry came into existence in the closing third of the eighteenth century, a violent encroachment which took place with the ruthless vigour of an avalanche. All the boundaries set by custom and by nature, by age and by sex, by day and by night, were effaced. Even the very ideas of day and night, defaced with rustic simplicity in the old statutes, became so much

¹ In this matter of the regulation of the working day, Belgium is the model bourgeois State. Lord Howard de Walden, British minister plenipotentiary at Brussels, reports to the Foreign Office under date May 12, 1860: "Monsieur Rogier, the minister, informed me that children's labour is limited neither by a general law nor by any local regulations; that the government during the last three years, attended in every session to propose a Bill on the subject, but always found an insuperable obstacle in the jealous opposition to any legislation in contradiction of the principle of perfect freedom of labour."

² "It is certainly much to be regretted that any class of persons who should toil 12 hours a day, which, including the time for their meals and for going to and returning from their work, amounts, in fact, to 14 of the 24 hours. . . . Without entering into the question of health, no one will hesitate, I think, to admit that, in a moral point of view, so entire an absorption of the time of the working classes without intermission, from the early age of 13, and in trades not subject to restriction, much younger, must be extremely prejudicial, and is an evil greatly to be deplored. . . . For the sake, therefore, of public morals, of bringing up an orderly population, and of giving the great body of the people a reasonable enjoyment of life, it is much to be desired that in all trades some portion of every working day should be reserved for rest and leisure." Leonard Horner, *Reports of Inspectors of Factories*, December 1841.

confused that as late as 1860 an English judge would have needed all the shrewdness of a commentator on the Talmud in order to give a legal decision as to what was night and what was day.¹ Capital was celebrating its orgies.

As soon as the working class, which had been confused by the din of the new method of production, began to recover its senses, it began also to resist the before-mentioned encroachments, especially in England, the birthplace of large-scale industry. For three decades, however, the concessions the workers were able to extort remained purely nominal. Between 1802 and 1833, parliament passed five labour laws, but was shrewd enough to refrain from voting a penny to provide means for carrying them out, for paying the necessary official staff, and so on.² They remained a dead letter. "The fact is that, prior to the Act of 1833, young persons and children were worked all night, all day, or both *ad libitum*."³

A normal working day for modern industry dates only from the Factory Act of 1833, which embraces in its scope, cotton, wool, linen, and silk factories. Nothing can be more characteristic of the spirit of capital than the history of English factory legislation from 1833 to 1864!

The law of 1833 declares that in factories the ordinary working day shall begin at half past five in the morning and shall end at half past eight in the evening. Within these limits, which comprise a period of 13 hours, it shall be lawful to employ young persons (this means persons between the ages of 13 and 18) at any time of the day, with the

¹ Cf. The judgment of Mr. J. H. Otway, Belfast. Hilary Sessions, County Antrim, 1860.

² It is extremely characteristic of the reign of Louis Philippe, the bourgeois monarch, that the only Factory Act passed while he was on the throne, the Act of March 22, 1841, was never carried into effect. Moreover, this law dealt only with the labour of children. It prescribed an 8-hour day for children between the ages of 8 and 12, a 12-hour day for children between the ages of 12 and 16, and so on, with numerous exceptions, according to one of which night-work became permissible even for children of 8 years. The supervision and enforcement of the law (in a country where every mouse is subject to inspection by the police) was left to the good will of the "friends of commerce". Not until 1855 was the first salaried governmental factory inspector appointed, this being in the department of the Nord. It is equally characteristic that, amid the din of French legislation, this law of 1841 should have remained a unique specimen of a Factory Act down to the revolution of 1848!

³ *Reports of Inspectors of Factories*, April 30, 1860, p. 50.

provide that one and the same young person shall not, apart from specially excepted cases, be employed for more than 12 hours in any one day. The sixth section of the Act provides: "That there shall be allowed in the course of every day not less than one and a half hours for meals to every such person restricted as hereinbefore provided." The employment of children under 9, with exceptions mentioned later, is forbidden; children at ages ranging from 9 to 13 are not to be employed for more than 8 hours a day. Night-work (this meaning, after the passing of the law we are considering, work between half past eight in the evening and half past five in the morning) is forbidden for all persons between the ages of 9 and 18.

The legislature was so far from any thought of interfering with the freedom of capital to absorb adult labour power (or, as the phrase ran, so far from any thought of interfering with "the freedom of labour"), that it set up a special system designed to prevent the Factory Act from having so alarming a result.

"The great evil of the factory system as at present conducted," we read in the first report of the Central Board of the Commission of June 28, 1833, "has appeared to us to be that it entails the necessity of continuing the labour of children to the utmost length of that of the adults. The only remedy for this evil, short of the limitation of the labour of adults, which would, in our opinion, create an evil greater than that which is sought to be remedied, appears to be the plan of working double sets of children. . . ." Under the name of a "system of relays" this plan was therefore carried into effect. From 5.30 in the morning until 1.30 in the afternoon, one set of children between the ages of 9 and 13 was put to work; and from 1.30 to 8.30 in the evening, another set took the place of the first.

In order to reward the factory owners for the way in which, during the previous two and twenty years, they had calmly ignored all the laws passed to regulate the labour of children, the pill was now gilded that it might be easier for them to swallow. Parliament decreed that, after March 1, 1834, no child under 11, after March 1, 1835, no child under 12, and after March 1, 1836, no child under 13, was to work more than 8 hours in a factory. This "liberalism", so complaisant towards capital, was all the more noteworthy seeing that Dr. Ferri, Sir A. Carlisle,

Sir B. Brodie, Sir C. Bell, Mr. Guthrie, and others (in a word, the most noted London physicians and surgeons of their day), had declared in their evidence before the House of Commons that there was danger in delay. Dr. Farre had expressed himself in very plain terms indeed: "Legislation is necessary for the prevention of death, in any form in which it can be prematurely inflicted, and certainly this" [the factory method] "must be viewed as a most cruel mode of inflicting it." This same "reformed" parliament which, in its delicate consideration for the factory owners, condemned children under 13 to work for years in the factory hall, toiling their 72 hours per week, found it possible in the Emancipation Act, which also supplied liberty by drops, to forbid the planters to work any negro slave longer than 45 hours a week!

But capital, far from being conciliated, now began a noisy agitation which lasted several years. This agitation chiefly concerned the age of those who, under the name of "children", were restricted to 8 hours' work a day, and were subjected to a certain amount of compulsory education. According to capitalist anthropology, childhood came to an end at the said age of 10, or, as an extreme limit, at 11. The mob of factory owners raged more furiously, the nearer drew the day for the full enforcement of the Factory Act—the momentous year 1836. They were, in fact, able to intimidate the government so thoroughly that in 1835 it was proposed to lower the limit of "childhood" from 13 to 12. Meanwhile, pressure from without grew more threatening. The House of Commons lacked courage to carry the aforesaid proposal into effect. The legislature decided that children of 13 were not to be thrown beneath the wheels of the Juggernaut car of capital for longer than 8 hours a day, and the Act of 1833 came into full operation. It remained unchanged until June 1844.

During the decade in which this Act regulated factory labour, partially at first and then completely, the official reports of the factory inspectors teemed with complaints as to the impossibility of carrying it out. The law of 1833 left it optional to the lords of capital, during the 15 hours from 5.30 a.m. to 8.30 p.m., to make every "young person" and every "child" begin, break off, resume, or end the 12 or 8 hours' shift of work at any moment which might best please the employer, and also permitted them to assign

to different persons different hours for meal times. The capitalists, therefore, were soon able to invent a new "system of relays" in accordance with which the beasts of toil were not changed at fixed stations, but were continually being reharnessed at stations varied to suit the employers' convenience. I shall not dwell here upon all the beauties of this system, since I shall have to return to the matter. This much, however, is clear at the first glance, that the relay system conflicted, not only with the spirit but also with the letter of the Factory Act. In view of the complicated system of bookkeeping that was necessary in respect to each individual child or young person, how could the factory inspectors enforce the legally prescribed hours of work and the granting of the legally prescribed time for meals? In many factories, the old brutalities were speedily revived, and continued without punishment. The factory inspectors, in an interview with the home secretary (1844), showed that it was impossible to exercise any sort of control under the newly contrived relay system.¹ Meanwhile, however, the circumstances had changed considerably. From 1838 onwards, the factory operatives had made a Ten Hours Bill their war cry in the economic field, as they had made the Charter their war cry in the political field. Some of the factory owners even, those who had run their factories in compliance with the stipulations of the Act of 1833, overwhelmed parliament with memorials concerning improper competition on the part of their false brethren, all those whose greater impudence or happier local circumstances enabled them to break the law with impunity. Moreover, however much the individual factory owner might give free rein to his customary lust for gain, the spokesmen and political leaders of the industrialists as a class insisted upon a change of conduct and a change of speech towards the workers. The campaign for the abolition of the Corn Laws had begun, and the workers' help was needed. The advocates of repeal therefore promised, not only a Big Loaf (which was to be doubled in size), but also the passing of the Ten Hours Bill. These were to be the first fruits of the free trade millennium.² The industrialists, consequently, could not venture to oppose a measure which was designed merely to make the Act of 1833 effective.

¹ *Reports of Inspectors of Factories*, October 31, 1842, p. 6.

² *Ibid.*, October 31, 1848, p. 98.

The torques, feeling that their most sacred interest, that of land-rent, was threatened, thundered with philanthropic indignation against the " nefarious practices " of their foes.

That was how the additional Factory Act of June 7, 1844, came into being. It entered into force on September 10, 1844. By this Act a new category of workers, females over 18, was given legal protection. Women were in every respect placed upon the same footing as young persons, their working time being restricted to 12 hours a day, night-work being forbidden in their case, and so on. This was the first occasion on which the British legislature had found it necessary to exercise direct and official control over the labour of adults. In the factory reports of 1844-1845, we find the ironical remark: " No instances have come to my knowledge of adult women having expressed any regret at their rights being thus far interfered with. " The working hours of children under 13 were reduced to 6½ hours a day, but, in certain conditions, to 7 hours a day.¹

To get rid of the abuses of this " spurious relay system ", the following regulations were incorporated in the law: " That the hours of work of children and young persons shall be reckoned from the time when any child or young person shall begin to work in the morning. " So that if A, for instance, began work at 8 in the morning, and B at 10, B's working day must nevertheless end at the same hour as A's. " The time shall be regulated by a public clock ", as, for instance, the nearest railway station clock, by which the factory clock was to be set. The factory owner was instructed to affix a " legible " printed notice, stating the hours when work was to begin and end, and the times allowed for meals. Children beginning work before noon must not be employed again after 1 p.m. This involved that the afternoon shift would consist of different children from the morning shift. Of the hour and a half for meal times " one hour thereof at the least shall be given before three of the clock in the afternoon, . . . and at the same period of the day. No child or young person shall be

¹ Leonard Horner uses this expression in his official reports, *Reports of Inspectors of Factories*, October 31, 1839, p. 7.

² *Reports, etc.*, September 30, 1844, p. 15.

³ The Act allowed children to be employed for 10 hours at a stretch if they did not work every day, but only on alternate days. For the most part, this clause remained inoperative.

employed more than five hours before 1 p.m. without an interval for meal times of at least 30 minutes. No child or young person (or female) shall be employed or allowed to remain in any room in which any manufacturing process is then [at meal times] carried on". We have seen that these precise directions, in accordance with which the periods, the limits, and the pauses of work are regulated with military uniformity and by the stroke of the clock, were by no means the products of parliamentary fancy. They were a gradual growth of the circumstances, emerging as the natural laws of the modern method of production. Their formulation, their official recognition, and their proclamation by the State, were the upshot of a prolonged class struggle. One of their first consequences was that practical experience made it essential to restrict the working hours of adult male factory operatives within the same limits as those legally prescribed for young persons and women—the reason being that, in most of the processes of production, the cooperation of persons of various ages and of both sexes was needed. On the whole, therefore, during the period from 1844 to 1847, the 12-hour working day became general and uniform in all branches of industry subjected to the Factory Acts.

Factory owners, however, did not allow this "progress" to take place without a corresponding "step backwards". Upon their instigation, the Lower House reduced the minimum age at which the exploitation of children could begin from 9 to 8, this being done to ensure that capital could have "the additional supply of children" which capitalists are by human and divine laws entitled to demand.¹

The years 1846 to 1847 mark an epoch in the economic history of England. In this period, the Corn Laws were repealed, the import duties on cotton and other raw materials were abolished, and free trade was declared to be the guiding star of legislation; in a word, the millennium was about to begin. On the other hand, in these same years, the chartist movement and the agitation on behalf of the Ten Hours Bill attained a climax, receiving support from

¹ "As a reduction in their hours of work would cause a larger number [of children] to be employed, it was thought that the additional supply of children from 8 to 9 years of age, would meet the increased demand." *Ibid.*, p. 13.

the twice, who were thirsting for revenge. Despite the stubborn resistance of the free-traders (with Cobden and Bright at their head), the Ten Hours Bill which had been fought for so long passed into law. According to the new Factory Act, passed on June 8, 1847, it was decided that on July 1, 1847, there was to be a preliminary shortening of the hours of labour for young persons (from 13 to 12) and for all females to 12 hours a day; but that on May 1, 1848, there should be a definitive limitation of the working day to 10 hours. In other respects, the Act only amended and completed the Acts of 1833 and 1844.

Capital now devoted itself, for the time being, to an attempt to prevent the Act from coming into full force on May 1, 1848. The workers, moreover, failing to profit by experience, were to help in the destruction of their own work. The moment was cleverly chosen. "It must be remembered, too, that there has been more than two years of great suffering" (in consequence of the terrible crisis of 1846-1847) "among the factory operatives, from many mills having worked short time, and many being altogether closed. A considerable number of the operatives must therefore be in very narrow circumstances; many, it is to be feared, in debt; so that it might fairly have been presumed that at the present time they would prefer working the longer time in order to make up for past losses, perhaps to pay off debts, or get their furniture out of pawn, or replace that sold, or to get a new supply of clothes for themselves and their families."¹

The factory owners tried to intensify the natural effect of these circumstances by a general reduction of wages, to the amount of 10 %. This was to be regarded as the "housewarming" of free trade. There was a further reduction of 8½ % as soon as the working day was shortened to 11 hours; and yet another reduction as soon as it was finally shortened to 10 hours. Whenever, therefore, circumstances allowed of this, a reduction of wages amounting to at least 25 % took place.² Thus was the ground prepared

¹ *Reports of Inspectors of Factories*, October 31, 1848, p. 28.

² "I found that men who had been getting 10s. a week, had had 10s. taken off for a reduction in the rate of 10 %, and 1s. 6d. off the remaining 9s. for the reduction in time, together 11s. 6d., and notwithstanding this, many of them said they would rather work 10 hours." *Ibid.*

for the starting of an agitation among the workers to secure the repeal of the Act of 1847. Lies, bribes, and threats were freely used, but in vain. As to the half dozen petitions in which the workpeople were made to complain of "their oppression by the Act", the petitioners themselves, when cross-questioned, declared that the signatures had been extorted from them. "They felt themselves oppressed, but not exactly by the Factory Act."¹ Though the factory owners did not succeed in making the workpeople speak as they wished, they themselves cried all the louder in the press and in parliament, as if in the name of the workers. They denounced the factory inspectors as revolutionists of the same type as the commissaries of the Convention in the days of the great French revolution; as men who were ruthlessly sacrificing the unhappy operatives to their own crochets. This manoeuvre likewise failed. Factory Inspector Leonard Horner, in person and through the instrumentality of sub-inspectors, examined many witnesses in the factories of Lancashire. About 70 % of the workpeople declared themselves in favour of the Ten Hours Bill; a much smaller percentage wanted an 11-hour day; and there was only a negligible minority in favour of the old 12-hour day.²

Another "friendly" dodge was to make the adult male workers toil for from 12 to 15 hours, and then to blazon this fact abroad as an indication that, in their heart of hearts, the proletarians wished to work such hours. But the "ruthless" factory inspector, Leonard Horner, was again to the fore. The majority of the "overtimers" testified: "They would much prefer working 10 hours for less wages, but that they had no choice; that so many were out of employment (so many spinners getting very low wages by having to work as piecers being unable to do better), that if they refused to work the longer time others would imme-

¹ " 'Though I signed it' (the petition) 'I said at the time I was putting my hand to a wrong thing.'—'Then why did you put your hand to it?'—'Because I should have been turned off if I had refused.' Whence it would appear that this petitioner felt himself 'oppressed' but not exactly by the Factory Act." *Reports*, etc., October 31, 1848, p. 102.

² *Ibid.*, p. 17.—In Mr. Horner's district, 20,170 adult male workers, belonging to 184 factories, were examined. Their evidence will be found in the appendix to the factory reports for the half year ending October 1848. The testimony is valuable in many other respects besides the one which now concerns us.

diately get their places, so that it was a question with them of agreeing to work the long time, or of being thrown out of employment altogether."¹

Capital's preliminary campaign had thus come to grief, and the Ten Hours Act came into force on May 1, 1848. Meanwhile, however, the collapse of the chartists, whose leaders had been imprisoned, and whose organisation had been broken up, had shaken the British workers' confidence in their own strength. Soon afterwards, when the June insurrection in Paris had been drowned in blood, all the sections of the ruling classes, the landowners and the capitalists, the sharks of the stock exchange and the shopkeepers, joined forces—alike on the Continent and in England. Protectionists and free traders, the government and the opposition, parsons and freethinkers, youthful whores and elderly nuns, stood shoulder to shoulder, one and all determined to save property, religion, the family, and society! The working class was everywhere decried, placed under a ban, so to speak, before the law. The factory owners, therefore, had a free hand. They broke out into open revolt, not only against the Ten Hours Act, but also against the whole of the legislation which, since 1833, had aimed at restricting to some extent the "free" exploitation of labour power. It was a pro-slavery rebellion in miniature, and was carried on for more than two years with a cynical recklessness, a terrorist energy, which were all the cheaper because the rebel capitalists risked nothing except the skin of their operatives.

To understand what follows, we must remember that the Factory Acts of 1833, 1844, and 1847, were all three in force, except in so far as the later ones amended the earlier; that not one of them restricted the working day of male workers over the age of 18; and that since 1833 the 15-hour day from 5.30 a.m. to 8.30 p.m. had remained the legal working day, within whose limits, at first the 12, and subsequently the 10, hours' labour of young persons and women had to be carried on under the prescribed conditions.

The factory owners began by discharging here and there

¹ Reports, etc., October 31, 1848.—The evidence personally collected by Leonard Horner, on this head, will be found in nn. 69, 70, 71, 72, 92, and 93; and that collected by Sub-Inspector A., in nn. 51, 52, 53, 59, 60, and 70 of the appendix. One of the factory owners, too, discloses the unvarnished truth; see p. 14 and p. 263.

some, in many cases half, of the young persons and women employed by them, while restoring for adult males the night-work which had become almost obsolete. They declared that the Ten Hours Act left them no option!¹

Their second onslaught was on the legal pauses for meals. Let us hear what the factory inspectors have to say about this. "Since the restriction of the hours of work to ten, the factory occupiers maintain, although they have not yet practically gone the whole length, that, supposing the hours of work to be from 9 a.m. to 7 p.m., they fulfil the provisions of the statutes by allowing an hour before 9 a.m., and half an hour after 7 p.m. [for meals]. In some cases they now allow an hour or half an hour for dinner, insisting at the same time that they are not bound to allow any part of the hour and a half in the course of the factory working day."² The factory owners, therefore, maintained that the extremely precise wording of the Act of 1844 with regard to meal times served merely to give the operatives permission to eat and drink before coming into and after quitting the factory—i.e. at home. Besides, why should not working folk eat their dinner before 9 o'clock in the morning? The crown lawyers, however, decided that the prescribed meal times "must be in the interval during the working hours, and that it will not be lawful to work for ten hours continuously from 9 a.m. to 7 p.m. without any interval".³

After these agreeable demonstrations, capital inaugurated its revolt by a step which conformed with the letter of the law of 1844, and was therefore legal.

The Act of 1844 certainly forbade the employment after 1 p.m. of children at ages ranging from 8 to 13 who had been employed before noon. But it did not regulate, in any way, the 6½ hours' work of the children whose work time began at noon or later. A child of 8 years old, therefore, beginning work at noon, might be employed from 12 to 1, 1 hour; from 2 to 4 in the afternoon, 2 hours; from 5 to 8.30 in the evening, 3½ hours; in all, the legal 6½ hours. Or, better still, in order to make their work simultaneous with that of the adult male workers who worked on until 8.30 p.m., the factory owners need not give the children any work before

¹ *Reports, etc.*, October 31, 1843, pp. 133-134.

² *Ibid.*, April 30, 1845, p. 47.

³ *Ibid.*, October 31, 1843, p. 136.

2 p.m.; and then, from that hour, a child of 8 could be kept at work in the factory without intermission until 8.30 in the evening. "And it is now expressly admitted that the practice exists in England from the desire of mill owners to have their machinery at work for more than ten hours a day, to keep the children at work with male adults after all the young persons and women have left, and until 8.30 p.m., if the factory owners choose."¹ Workmen and factory inspectors protested both on hygienic and on moral grounds. But capital made answer:

My deeds upon my head! I crave the law,
The penalty and forfeit of my bond.

In fact, according to statistics laid before the House of Commons on July 26, 1850, it appeared that, despite all protests, on July 15, 1850, no less than 3742 children were being subjected to this "practice" in 257 factories. Still, this was not enough.² The eagle eye of capital discovered that whereas the Act of 1844 did not allow 5 hours' work before noon without a pause of at least 30 minutes for refreshment, no mention was made of a pause of the kind when work was done after noon. The factory owners, therefore, claimed, and secured, the delight, not only of making children of 8 toil without a break from 2 to 8.30 p.m., but also of making them go without food during this period.

Ay, his heart;
So says the bond.³

¹ Reports, etc., October 31, 1848, p. 242.

² *Ibid.*, October 31, 1850, pp. 5-6.

³ No matter whether capital is in its undeveloped or in its developed form—its nature is one and the same. Shortly before the outbreak of the American Civil War, the slave owners were able to impose upon the territory of New Mexico a legal code in which it was declared that the worker, inasmuch as the capitalist has bought his labour power, "is his money"—i.e. the capitalist's money. A similar view was current among the patricians of ancient Rome. The money which they had advanced to plebeian debtors had, through the instrumentality of the means of subsistence, been transformed into debtors' flesh and blood. This "flesh and blood" was, therefore, "their money". Hence the Skylock spirit of the laws of the Ten Tables! The accuracy of Liguet's hypothesis that from time to time, across the Tiber, the patrician creditors feasted upon the flesh of their debtors, may be left more—like that of Dausner's hypothesis concerning the Christian Eucharist.

This Shylock-like insistence upon the letter of the law of 1844, in so far as that law regulated child labour, was merely designed to lead up to an open revolt against the same law in so far as it regulated the labour of "young persons and women". The reader will remember that the abolition of the "spurious relay system" was the chief aim and object of that law. The factory owners began their revolt with the simple declaration that the sections of the Act of 1844 which forbade the unrestricted use of young persons and women in such short fractions of the 15-hour day as the employer chose, were "comparatively harmless" so long as the work time was fixed at 12 hours. But under the Ten Hours Act these sections were a "grievous hardship".¹ They calmly showed the inspectors that they considered themselves above the letter of the law, and that they intended to reintroduce the old system.² They were acting in the interests of the ill-advised workers themselves, "in order to be able to pay them higher wages". They said that "this was the only possible plan by which to maintain, under the Ten Hours Act, the industrial supremacy of Great Britain".³ Again: "Perhaps it may be a little difficult to detect irregularities under the relay system, but what of that? Is the great manufacturing interest of this country to be treated as a secondary matter in order to save some little trouble to inspectors and sub-inspectors of factories?"⁴ Of course these dodges were of no avail, the factory inspectors brought the matter before the courts. Ever long, however, such a cloud of dust was raised by the factory owners, in the form of petitions to the home secretary, Sir George Grey, that, in a circular under date August 5, 1848, this gentleman recommended the inspectors not "to lay information against mill owners for a breach of the letter of the Act, or for employment of young persons by relays in cases in which there is no reason to believe that such young persons have been actually employed for a longer period than that sanctioned by law". Thereupon Factory Inspector J. Stuart allowed the so-called relay system during the 15-hour period of the factory working day to be reestablished throughout Scotland, where it soon flourished as of old.

¹ *Reports, etc.*, April 30, 1848, p. 28.

² See, for instance, the threatening quaverish letter from Ashworth, the philanthropist, to Leonard Horner. *Reports, etc.*, April 1849, p. 4.

³ *Ibid.*, p. 134.

⁴ *Ibid.*, p. 140.

The English factory inspectors, on the other hand, declared that the home secretary had no authority to suspend the law in so dictatorial a fashion, and they continued to take legal proceedings against the pro-slavery rebels.

But what was the good of haling capitalists before the courts, when the courts, the county magistrates (Cobbett's "great unpaid"), persisted in dismissing the charge? In these tribunals the factory owners sat in judgment upon themselves. Here is an example. One Eskrigge, a cotton spinner, a member of the firm of Kershaw, Loose, & Co., had submitted to the factory inspector of his district the scheme of a relay system intended for his mill. When the factory inspector refused to pass the plan, Eskrigge remained inactive for a time. A few months later, a person named Robinson, another cotton spinner, and, if not Eskrigge's Man Friday, certainly a relative of Eskrigge, was summoned before the borough magistrates of Stockport on the charge of introducing the very plan for relays which had been conceived by Eskrigge. There were four magistrates on the bench; three of them were cotton spinners, headed by the inevitable Eskrigge. The court dismissed the case, and Eskrigge was now of opinion that what was right for Robinson was right for Eskrigge. On the strength of his own legal decision he promptly introduced the system into his own factory.¹ It need hardly be said that the constitution of such courts is an open violation of the law.² "These judicial forces," exclaims Inspector Howell, "urgently call for a remedy—either that the law should be so altered as to be made to conform to these decisions, or that it should be administered by a less fallible tribunal, whose decisions would conform to the law. . . . When these cases are brought forward, I long for a stipendiary magistrate."³

The crown lawyers declared that the factory owners' interpretation of the Act of 1848 was absurd. But the saviours of society would not allow themselves to be turned

¹ *Reports, etc.*, April 30, 1849, pp. 22-23.—For similar examples see *ibid.*, pp. 4-5.

² By 1 and 2 William IV, cap. 24, § 10, an Act known as Sir John Hobhouse's Factory Act, any one who should be owner of a cotton spinning or weaving mill or should be father, son, or brother of such owner, was forbidden to act as justice of the peace in any enquiries that concerned the Factory Act.

³ *Reports, etc.*, April 30, 1849, p. 23.

from their purpose. Leonard Horner reports: "Having endeavoured to enforce the Act . . . by ten prosecutions in seven magisterial divisions, and having been supported by the magistrates in one case only, . . . I considered it useless to prosecute more for this evasion of the law. That part of the Act of 1848 which was framed for securing uniformity in the hours of work, . . . is thus no longer in force in my district [Lancashire]. Neither have the sub-inspectors or myself any means of satisfying ourselves, when we inspect a mill working by shifts, that the young persons and women are not working more than 10 hours a day. . . . In a return of the 30th April, . . . of mill owners working by shifts, the number amounts to 114, and has been for some time rapidly increasing. In general, the time of working the mill is extended to 13½ hours, from 6 a.m. to 7½ p.m., . . . in some instances it amounts to 15 hours, from 5½ a.m. to 8½ p.m."¹ Already in December 1848, Leonard Horner had a list of 65 factory owners and 29 factory overlookers who unanimously declared that no system of supervision could, under this relay system, prevent an enormous amount of overwork.² Children and young persons would, during the 15-hour working day, be shifted from the spinning room to the weaving room, or from one factory to another.³ How was it possible to control a system which "under the guise of relays, is some one of the many plans for shuffling 'the hands' about in endless variety, and shifting the hours of work and of rest for different individuals throughout the day, so that you may never have one complete set of hands working together in the same room at the same time"?⁴

But, quite apart from actual overwork, this so-called relay system was an offspring of capitalist fantasy, such as even Fourier never could do in his quaint incubations about "short sittings" for the exercise of the passions—except that the "attraction of labour" was changed into the "attraction of capital". Consider, for instance, those schemes of the factory owners which the "respectable" press praised as models of "what a reasonable degree of care and method can accomplish". The personnel of

¹ *Report*, etc., April 30, 1849, p. 5.

² *Ibid.*, October 31, 1849, p. 6.

³ *Ibid.*, April 30, 1849, p. 11.

⁴ *Ibid.*, October 31, 1848, p. 65.

workers was sometimes divided into from twelve to fifteen categories, whose composition was continually being changed. During the 15 working hours of the factory day, capital would drag in the worker, now for half an hour, now for an hour, and then thrust him out again; to drag him in once more, and thrust him out once more; bounding him hither and thither in scattered shreds of time, without ever losing hold of him until his ten hours' labour were finished. As happens on the stage, in the different scenes the same persons had to appear again and again. But just as an actor belongs to the stage for the whole duration of the play, so did the workers belong to the factory for the whole 15 hours, without reckoning in the time spent in coming to work and going home again. Thus the hours of rest were transformed into hours of enforced idleness, which drove the young workman to the pothouse and the young workwoman to the brothel. Day by day, the capitalist hit upon new devices for keeping his machinery at work for 12 or 15 hours at a stretch without increasing the number of workers; and according as the schemes varied, these workers had to gulp down their meals, now in this fragment of time and now in that. When the agitation for the 10-hour day was in progress, the factory owners cried out that the working mob was making this demand in the hope of receiving 12 hours' pay for 10 hours' work. Now the employers reversed the medal. They paid 10 hours' wages for 12 or 15 hours' control of labour power.¹ That was the core of the matter; that was the factory owners' interpretation of the Ten Hours law! These were the same unctuous free traders, cooing philanthropy at every pore, who for ten long years, during the Anti-Corn Law agitation, had preached to the workers, to the tune of calculations in pounds, shillings, and pence, that, once corn could be freely imported, the means of production at the disposal of British industry were such that ten hours' labour would be ample enough to enrich the capitalists.²

¹ See Reports, etc., April 30, 1849, p. 6; also a detailed explanation of the "shifting system", by Factory Inspectors Howell and Saunders, Reports, etc., October 31, 1848. See also the petition to the Queen from the clergy of Ashton and neighbourhood in the spring of 1849, against the "shift system".

² Cf. for example, *The Factory Question and the Ten Hours Bill*, by R. H. Greg, 1837.

After the revolt of the capitalists had lasted for two years, their endeavours were crowned with victory by a decision of one of the four highest courts of justice in England, the Court of Exchequer, which, in a case brought before it on February 8, 1850, decided that, although the factory owners had infringed the Act of 1844, nevertheless this Act contained words that rendered it meaningless. "By this decision the Ten Hours Act was abolished."¹ A number of factory owners who had hitherto hesitated to introduce the relay system for young persons and women, now adopted it wholeheartedly.²

But this victory of capital, apparently decisive, was promptly followed by a reaction. Hitherto the workers had been content with passive resistance, though this passive resistance had been unflinchingly and perpetually renewed. Now they voiced loud protests at meetings in Lancashire and Yorkshire. Their tone became threatening. It seemed that the alleged Ten Hours law had been pure humbug, parliamentary trickery, and had never existed! The factory inspectors warned the government in urgent terms that class antagonism had risen to an incredible pitch. Even some of the factory owners murmured, saying: "On account of the contradictory decisions of the magistrates, a condition of things altogether abnormal and anarchical obtains. One law holds in Yorkshire, another in Lancashire; one law in one parish of Lancashire, another in its immediate neighbourhood. The manufacturer in large towns could evade the law, the manufacturer in country districts could not find the people necessary for the relay system, still less for the shifting of hands from one factory to another." But the birthright of capital is its faculty for exploiting labour power everywhere on equal terms.

In these circumstances, a compromise was struck between the factory owners and the workers; and the agreement was sealed in the additional Factory Act of August 5, 1850. For "young persons and women" the working day during the first five days of the week was increased from 10 to 10½ hours.

¹ F. Engels, *Die englische Fabrikgesetze-bill*, in the "*Neue Rheinische Zeitung*", edited by Karl Marx, April 1850, p. 11.—This same "high" court of justice discovered, during the American Civil War, the verbal ambiguity which reversed the meaning of the law against the arming of privateers (read, pirate ships).

² *Reports*, etc., April 30, 1850.

while on Sabar days it was restricted to $7\frac{1}{2}$ hours. The work must be performed between 6 in the morning and 6 in the evening,¹ with $1\frac{1}{2}$ hours' intervals for meals, the meal times to be identical for all, and conformable to the conditions prescribed by the Act of 1844. By these means, the relay system was put an end to once for all.² As regards the labour of children, the law of 1844 remained in force.

On this occasion, as before, one set of factory owners was able to retain special seigniorial rights over proletarian children. These were the owners of silk factories. In the year 1833, they had threateningly exclaimed: "If the liberty of working children of any age for ten hours a day were taken away, it would stop their works."³ They said it would be impossible for them to buy a sufficient number of children over 13, and they were able to extort the privilege they wanted. Subsequent investigation showed that their pretext was a sheer falsehood.⁴ Still, this did not hinder them, during the ten years, from spinning silk for ten hours a day out of the blood of little children, children so small that they had to be placed on stools in order to do their work.⁵ It is true that the Act of 1844 "robbed" them of their "liberty" to employ children under 13 for more than $6\frac{1}{2}$ hours a day; but, on the other hand, it gave them the privilege of making children aged from 11 to 13 years toil for 10 hours a day; and it annulled in their case the obligation to provide education for the children, which was incumbent upon other factory owners. This time the pretext was "the delicate texture of the fabric in which they were employed requiring a lightness of touch only to be acquired by their early introduction to these factories".⁶ Thus children were butchered for the sake of their delicate fingers, just as burned cattle are butchered in southern Russia for the sake of their hides and their tallow. At length, in 1850, the privilege granted in 1844 was restricted to the departments of silk twisting and silk

¹ In winter from 7 in the morning to 7 in the evening night be substituted.

² The law of 1850 "was a compromise whereby the employed surrendered the benefit of the Ten Hours Act for the advantage of one uniform period for the commencement and termination of the labour of those whose labour is restricted". *Reports, etc.*, April 30, 1853, p. 14.

³ *Reports, etc.*, September 30, 1844, p. 13.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*, p. 20.

winding. But, to make amends to capital for being deprived of its "freedom", the work-time for children aged from 11 to 13 was raised from 10 to 10½ hours. In this case the reason alleged was: "Labour in silk mills was lighter than in mills for other fabrics, and less likely in other respects also to be prejudicial to health".¹ Medical enquiry, under official auspices, subsequently showed that the reverse of this was true, that "the average death-rate is exceedingly high in the silk districts and amongst the female part of the population is higher even than it is in the cotton districts of Lancashire".² Thus it continues down to the present day, notwithstanding the protests of the factory inspectors, renewed twice every year.³

¹ *Reports, etc.*, October 31, 1861, p. 16.

² *Op. cit.*, p. 27.—On the whole, there has been a marked improvement in the physical condition of that part of the working population which has come under the operations of the Factory Act. All the medical witnesses agree as to this, and my own personal observations at various periods have convinced me that it is so. Nevertheless, quite apart from the terribly high infant mortality in the districts where factory labour prevails, Dr. Greenhow's official reports show how unfavourably, in respect of health, these districts compare with "agricultural districts of no mean health". Consider the following table, which I quote from his 1860 report:

Percentage of Adult Males exposed to Manufactures.	Percentage of Adult Males exposed to Agriculture and Rural Trades.	Name of District.	Deaths from 1850 to 1859, 1000 men per annum treated.	Percentage of Adult Males exposed to Manufactures.	Kind of Female Occupation.
14·9	598	Wigan	844	28·0	Cotton
41·6	708	Blackburn . . .	734	34·9	Cotton
37·3	567	Halifax	314	20·4	Woolsted
41·9	611	Bradford	605	30·0	Woolsted
31·6	601	Macclesfield . .	804	26·0	Silk
14·9	588	Leek	705	27·0	Silk
36·0	741	Stoke-upon-Trent.	665	19·3	Earthenware
30·4	736	Wolverhampton .	727	23·9	Earthenware
—	305	Eight healthy agricultural districts	340	—	—

³ Every one knows how reluctant were the English "free traders" to abandon the protective duty on manufactured silk. But the

By the Act of 1850, the 15-hour period from 6 a.m. to 3.30 p.m. was changed only as concerned "young persons and women" into the 12-hour period from 6 a.m. to 6 p.m. The change, therefore, did not affect children, who could always be employed for half an hour before and for two and a half hours after this period, provided that the whole period of their daily labour did not exceed 6½ hours. When the Bill was under discussion in parliament, the factory inspectors tendered statistics concerning the infamous abuses due to this anomaly. Their intervention was of no avail. In the background lurked a design to screw up the working hours of adults to 15, as soon as years of good trade should return. This was to be achieved with the help of the children. The experience of the next three years showed, however, that any such attempt would be frustrated by the resistance of the adult male operatives.¹ Consequently, in 1853, the Act of 1850 was at length amplified by a prohibition of "the employment of children in the morning before and in the evening after young persons and women". Henceforward, with a few exceptions, the Factory Act of 1850 regulated the working day of all workers, in the branches of industry that came under its provisions.² Since the passing of the first Factory Act, half a century had elapsed.³

absence of protection for English children working in the factories now serves their turn instead of protection against imports from France.

¹ Reports, etc., April 30, 1853, p. 31.

² During the years 1850 and 1860, when the English cotton industry touched its zenith, some of the factory owners tried, by holding out the lure of higher wages for overtime, to reconcile the adult male operatives to an extension of the working day. The hand-loom spinners and self-actor minders put a stop to this experiment by sending up a memorial to the following effect: "Plainly speaking, our lives are to us a burden; and while we are confined to the mill nearly two days a week more than the other operatives of the country, we feel like halots in the land, and that we are perpetrating a system injurious to ourselves and future generations. . . . Thus, therefore, is to give you most respectful notice that when we commence work again after the Christmas and New Year's holidays we shall work 60 hours per week, and no more, or from six to six, with one hour and a half out." Reports, etc., April 30, 1860, p. 30.

³ As regards the opportunities which the wording of this Act gave for violation, consult the parliamentary return, *Factory Regulation Act*, August 6, 1853, and therein Leonard Horner's *Suggestions for Amending the Factory Act* to enable the Inspectors to prevent illegal Working now become very Frevalent.

Factory legislation for the first time transcended its original limits in the Printworks Act of 1845. Capital's reluctance to contemplate this new "extravagance" speaks through every line of the Act. It limits the working day for children from 8 to 13 years, and for women, to 16 hours, between 6 a.m. and 10 p.m., without any legal pause for meal times. It allows males over 13 to be worked at will day and night.¹ It is a parliamentary abortion.²

Nevertheless, the principle had triumphed with its victory in those great branches of large-scale industry which form the most characteristic creation of the modern method of production. Their marvellous development during the years from 1853 to 1860, going hand-in-hand with the physical and moral regeneration of the factory operatives, was obvious even to the purblind. The factory owners themselves, though legal limitation and regulation had been wrung from them step by step after a civil war which had lasted half a century, referred boastingly to the contrast between their own industries and those branches in which the right of "free" exploitation still prevailed.³ The pharisees of "political economy" now declared that the recognition of the need for legal regulation of the length of the working day had been a characteristic discovery of their "science".⁴ It will readily be understood that, as soon as the factory magnates had resigned themselves to the inevitable and had come to terms with it, capital's powers of resistance gradually weakened, and that simultaneously the worker's powers of offensive grew as they gained more and more allies in the classes of society not immediately interested in the question. That is why progress has been so much quicker since 1860.

¹ "Children of the age of 8 years and upwards, have, indeed, been employed from 6 a.m. to 9 p.m. during the last half year in my district." *Reports, etc.*, October 31, 1857, p. 39.

² "The Printworks Act is admitted to be a failure, both with reference to its educational and protective provisions." *Reports, etc.*, October 31, 1860, p. 56.

³ Cf. for instance, E. Potter, in a letter to the "Times" of March 14, 1863. That newspaper reminded him of the factory owners' revolt against the Ten Hours Bill.

⁴ Cf., among others, Mr. W. Newman, editor of and one of the contributors to *Tooke's History of Prices*.—Is it a scientific advance to make cowardly concessions to public opinion?

In 1860, the provisions of the Factory Act of 1850 were extended to all dye works and bleaching works;¹ and in 1861, to lace factories and stocking factories. As an outcome of the first report of the Children's Employment Commissioners (1863), the same fate was shared by the makers of all kinds of earthenware (not pottery alone), lucifer matches, percussion caps, cartridges, and wall-papers; also by the fastian cutters; and by those engaged in many processes included under the name of "finishing". In the year 1863, bleaching in the open air and baking were

¹ The Act of 1860, which concerned dye works and bleaching works, prescribed that, from August 1, 1861, the working day should be provisionally fixed at 12 hours, and from August 1, 1862, should be definitely reduced to 10 hours, being 10½ hours on weekdays and 7½ hours on Saturdays. But when 1862, the year of definitive enforcement, came, the old farce was repeated. The factory owners petitioned parliament to allow the employment of young persons and women for 12 hours during one year more. "In the existing condition of the trade" (1862 was the year of the cotton famine), "it was greatly to the advantage of the operatives to work 12 hours per day and make wages when they could." A Bill to this effect had been brought in, "and it was mainly due to the action of the operative bleachers in Scotland that the Bill was abandoned". *Reports, etc.*, October 31, 1862, pp. 14-15.—The Act of 1860 having thus been repudiated by the very workers whose interests it professed to safeguard, the capitalists, putting on lawyers' spectacles, were able to discover that this Act, like all legislation for the "protection of labour", was couched in equivocal phraseology, which gave them a pretext to exclude the calendarers and the dairymen from its provisions. In the Court of Common Pleas, English jurisprudence (ever the faithful servant of capital), sanctioned this pettifoggish interpretation "The operatives have been greatly disappointed. . . . They have complained of overwork, and it is greatly to be regretted that the clear intention of the legislature should have failed by reason of a faulty definition." *Reports, etc.*, October 31, 1862, p. 16.

² The "open-air bleachers" had evaded the law of 1860, by means of a false statement to the effect that in this industry no women were engaged on night-work. The lie was exposed by the factory inspectors, and at the same time petitions from the operatives dispelled from the minds of parliamentarians the notions these had entertained concerning "open-air bleaching" as an industry carried on in cool and fragrant meadows. In what was called "open-air bleaching", drying rooms were used at temperatures ranging from 90° to 100° Fahrenheit, and in these most of the work was done by girls. "Cooling" is the technical name for their occasional escape from the drying rooms into the fresh air. "Fifteen girls in stoves. Heat from 80° to 90° for linen, and 100° and upwards for cambrics. Twelve girls ironing and doing up in a small room about 20 feet square, in the centre of which is a close stove. The girls stand round

placed under special Acts, by which in the former, the labour of children, young persons, and women during the night-time (from 8 in the evening to 6 in the morning), and in the latter, the employment of journeymen bakers under 18 between 9 in the evening and 5 in the morning, were forbidden. The later proposals of the Children's Employment Commission, which threatened to deprive of their "freedom" all the important branches of English industry except agriculture, mining, and transport, will be considered later.¹

the stove, which throws out a terrific heat, and dries the caprices rapidly for the ironers. The hours of work for these hands are unlimited. If busy, they work till 9 or 12 at night for successive nights." *Reports, etc.*, October 31, 1883, p. 56.—A medical man states: "No special hours are allowed for cooling, but if the temperature gets too high, or the workers' hands get scalded from perspiration, they are allowed to go out for a few minutes. . . . My experience, which is considerable, in treating the diseases of stove workers, compels me to express the opinion that their sanitary condition is by no means so high as that of the operatives in a spinning factory" [though capital, in its memorials to parliament, had depicted them with a Rubens' brush as floridly healthy]. "The diseases most observable amongst them are phthisis, bronchitis, irregularity of uterine functions, hysteria in its most aggravated forms, and rheumatism. All of these, I believe, are either directly or indirectly induced by the impure, overheated air of the apartments in which the hands are employed, and the want of sufficient comfortable clothing to protect them from the cold, damp atmosphere, in winter, when going to their homes." *Ibid.*, pp. 56-57.—With regard to the supplementary law of 1880, the factory inspectors remarked: "The Act has not only failed to afford that protection to the workers which it appears to offer, but contains a clause . . . apparently so worded that, unless persons are detected working after 8 o'clock at night, they appear to come under no protective provisions at all, and if they do so work, the mode of proof is so doubtful that a conviction can scarcely follow." *Ibid.*, p. 58.—Again: "To all intents and purposes, therefore, as an Act for any benevolent or educational purpose, it is a failure; since it can scarcely be called benevolent to permit, which is tantamount to compelling, women and children to work 14 hours a day with or without meals, as the case may be, and perhaps for longer hours than these, without limit as to age, without reference to sex, and without regard to the social habits of the families of the neighbourhood in which each works (bleaching and dyeing)." *Reports, etc.*, April 30, 1883, p. 40.

¹ Note added to the second edition: Since 1886, when I wrote the foregoing passages, a reaction has again set in.

7. STRUGGLE FOR A NORMAL WORKING DAY (continued). REPERCUSSION OF THE ENGLISH FACTORY ACTS ON OTHER COUNTRIES.

The reader will remember that the production of surplus value or the extraction of surplus labour constitutes the specific end and aim, the sum and substance, of capitalist production—apart from any changes in the mode of production which may arise out of the subordination of labour to capital. He will not forget that, in accordance with our study of the subject up to the present, only an independent worker, and therefore only a worker legally qualified to manage his own affairs, can, as a vendor of a commodity, enter into a contract with the capitalist. If, therefore, in our historical sketch, on the one hand modern industry plays a leading part, and on the other hand the labour of persons who physically and legally are minors plays a leading part, this is because the former was for us only a special department for the extraction of surplus labour, while the latter was adduced as a peculiarly striking example of the same process. Without anticipating the subsequent course of our enquiry, we can deduce certain points from the mere interconnections of the historical facts we have been considering.

First of all, the passion of capital for an unlimited and reckless extension of the working day is earliest gratified in the industries that are soonest revolutionised by water-power, steam, and machinery; in those first creations of the modern method of production, the industries in which cotton, wool, flax, and silk are spun and woven. The changes in the material method of production, and the corresponding changes in the social relations among the producers,¹ lead, first of all, to an overstepping of all reasonable limitations in the working day; and then, in opposition to this, evoke a movement to establish a social control, which shall legally restrict the hours of labour, shall regulate and make uniform the working day and its pauses. During the first half of the nineteenth century, this control takes the form of purely exceptional legislation.²

¹ "The contest of each of these classes [capitalists and workers] has been the result of the relative situation in which they have been placed." *Reports, etc.*, October 32, 1848, p. 113.

² "The employments placed under restriction were connected with the manufacture of textile fabrics by the aid of steam or water

As soon as the control had mastered the primitive domain of the new method of production, it became apparent that, meanwhile, not only had many other branches of production adopted the factory system, but that manufactures in which more or less antiquated methods of industry prevailed, such as potteries, glassworks, etc., and that old-fashioned handicrafts, such as baking, and finally that even scattered, so-called domestic industries, such as nail-making,¹ had long since succumbed to the rule of capitalist exploitation just as fully as had the factories. Legislation of the kind we are considering had, therefore, by degrees, to discard the characteristics of exceptional laws. As an alternative (one which was adopted in England) it had to declare casuistically that any house in which industrial work was done might be regarded as a factory.²

In the second place, the history of the regulation of the working day in certain branches of production, and the struggle to enforce regulation which is still going on in others, prove conclusively that the isolated worker, one who "freely" sells his labour power, is hopelessly unable to offer any resistance to the encroachments of capital when capitalist production has reached a certain stage of maturity. The establishment of a normal working day is, therefore, the outcome of a protracted civil war, more or less veiled, between the capitalist class and the working class. Since this struggle begins in the domain of modern industry, it first manifests itself in the birthplace of that industry, in England.³ The English factory workers have

power. There were two conditions to which an employment must be subject to cause it to be inspected, viz. the use of steam or water power, and the manufacture of certain specified items." *Reports, etc.*, October 31, 1864, p. 8.

¹ The latest reports of the Children's Employment Commission contain extremely valuable information as to the condition of the so-called domestic industries.

² "The Acts of last session (1864) . . . embrace a diversity of occupations the customs in which differ greatly, and the use of mechanical power to give motion to machinery is no longer one of the elements necessary, as formerly, to constitute, in legal phrase, a factory." *Reports, etc.*, October 31, 1864, p. 8.

³ Belgium, the paradise of continental liberalism, shows no trace of such a movement. Even in coalmines and metal mines workers of both sexes and all ages are devoured by capital with perfect "freedom" for any length of time, and at any period of the day or night. Of every 1000 persons employed there, 733 are men, 88 women, 233 boys, and 44 girls under 16. In blast-furnaces, etc., to every

been the champions, not only of the English working class, but of the modern working class in general, just as their theoreticians were the first to challenge the theory of capital.¹ Ure, the philosopher of the factory system, therefore tells us that it is an everlasting disgrace to the British working class that it inscribed upon its banners "the slavery of the Factory Acts", as contrasted with the capitalists, who manfully strove on behalf of the "perfect freedom of labour".²

France limps along slowly behind England. The February revolution was needed to bring about the birth of the Twelve Hours law, which is a poor copy of its English original.³ For all that, there are certain advantages peculiar

room men there are 149 women, 98 boys, and 85 girls under 16. Add to this, that the wages paid for the excessive exploitation of labour power, both mature and immature, are preposterously low. The average daily rate of wages for a man is 2s. 8d.; for a woman, 1s. 8d.; and for young persons, 1s. 1½d. As a set-off against this, we have the fact that, in 1885, as compared with 1850, Belgium had almost doubled both the amount and the value of its exports of coal, iron, etc.

¹ Soon after 1810, Robert Owen not only maintained as a point of theory that the working day ought to be restricted, but actually introduced a 10-hour day into his factory at New Lanark. This was laughed at as a communist utopia. The same criticism was levelled at his "combination of children's education with productive labour", and at the cooperative societies of working men of which he was the initiator. To-day, the first of these utopias is a Factory Act; the second figures as an official phrase in all Factory Acts; while the third is already being used as a cloak for reactionary hunting.

² Ure, *Philosophie der manufacturen* (a French translation), Paris, 1838, vol. II, pp. 36, 40, 67, 77, etc.

³ In the report of the International Statistical Congress held at Paris in the year 1855, we read: "The French law which limits the working day in factories and workshops to 12 hours does not confine this work to definite and fixed hours. It is content to declare that child labour must not be employed except between 5 o'clock in the morning and 9 o'clock in the evening. Consequently, some of the factory owners take advantage of this disastrous silence of the law to keep their workers going without intermission, day in and day out, with the occasional exception of Sundays. For this purpose they have two shifts of workers, neither shift being in the factory for more than 12 hours at a time, but the work goes on by night as well as by day. The law is fulfilled, but what about the humanity of the matter?" Apart from "the destructive influence of night-work on the human organism", the report lays stress upon the "disastrous results of associating the two sexes by night in badly lighted workshops".

to the French revolutionary method. It imposes the same limitations upon the working day in all workshops and factories without distinction, whereas the English legislature yields reluctantly to the pressure of circumstances, now on this point and now on that, and loses its way in a bewildering tangle of contradictory enactments.¹ On the other hand, the French law proclaims as a principle that which in England has only been won in the name of children, young persons, and women, and only in very recent days has been claimed as a universal right.²

In the United States of America, any sort of independent labour movement was paralysed so long as slavery disfigured a part of the republic. Labour with a white skin cannot emancipate itself where labour with a black skin is branded. But out of the death of slavery a new and vigorous life sprang. The first fruit of the Civil War was an agitation for the 8-hour day—a movement which ran with express speed from the Atlantic to the Pacific, from New England to California. At the general convention of the National Labour Union held at Baltimore, it was declared on August 16, 1866: "The first and great necessity of the present, to free the labour of this country from capitalistic slavery, is the passing of a law by which 8 hours shall be the normal working day in all States of the American Union. We are resolved to put forth all our strength until this glorious result is attained."³ At the same time, the

¹ "For instance, there is within my district one occupier who, within the same curtilage, is at the same time a bleacher and dyer under the Bleaching and Dyeing Works Act, a printer under the Printworks' Act, and a spinner under the Factory Act." Mr. Baker in *Reports, etc.*, October 31, 1861, p. 20.—After enumerating the various provisions of these Acts, and the resulting complications, Mr. Baker goes on to say: "It will hence appear that it must be very difficult to secure the execution of these three Acts of parliament where the occupier chooses to evade the law." Anyhow, one thing is made secure for the lawyers—that there will be plenty of lawwork.

² Thus the factory inspectors at last venture to say: "These objections" [offered by capital to the legal restriction of the working day] "must succumb before the broad principle of the rights of labour. . . . There is a time when the master's right in his workman's labour ceases, and his time becomes his own, even if there were no exemption in the question." *Reports, etc.*, October 31, 1864, p. 34.

³ "We, the workers of Dunkirk, declare that the length of time of labour required under the present system is too great, and that, far from leaving the worker time for rest and education, it plunges

Geneva congress of the International Workingmen's Association, in conformity with a proposal made by the General Council, resolved that "a limitation of the working day is a preliminary condition without which all further attempts at improvement or emancipation must prove abortive. . . . The congress proposes eight hours as the legal limit of the working day".

Thus on both sides of the Atlantic did the working class movement, a spontaneous outgrowth of the conditions of production, endorse the words of Factory Inspector G. J. Saunders: "Further steps towards a reformation of society can never be carried out with any hope of success, unless the hours of labour be limited and the prescribed limit strictly enforced."

We must admit that our worker comes out of the process of production in a different guise from that in which he entered it. He went into the market as the owner of the commodity "labour power", to confront there the owners of other commodities; he was one commodity owner facing another commodity owner. The contract in accordance with which he sold his labour power to the capitalist stated, so to say, in black and white, that he had the free disposal of himself. But when the bargain has been struck, it is discovered that he is "not a free agent", that the time for which he is free to sell his labour power is the time for which he is forced to sell it,¹ that in fact the creature sucking his blood will not loose its hold "so long as there

him into a condition of servitude but little better than slavery. That is why we decide that eight hours are enough for a working day, and ought to be legally recognised as enough; why we call to our help that powerful lever the press; . . . and why we shall consider all those that refuse us this help as enemies of the reform of labour and of the rights of the labourer." *Resolutions of the Workingmen of Oswego, New York State, 1866.*

¹ *Reports, etc.*, October 31, 1848, p. 112.

² "The proceedings" [the measures of capital from 1848 to 1850] "have afforded, moreover, incontestable proof of the fallacy of the assertion so often advanced, that operatives need no protection, but may be considered as free agents in the disposal of the only property which they possess—the labour of their hands and the sweat of their brow." *Reports, etc.*, April 30, 1850, p. 43.—"Free labour (if so it may be termed) even in a free country, requires the strong arm of the law to protect it." *Ibid.*, October 31, 1848, p. 34.—"To permit, which is tantamount to compelling, . . . to work 14 hours a day with or without meals." *Ibid.*, April 30, 1849, p. 42.

is a muscle, a nerve, a drop of blood to be exploited".¹ For protection against the worm gnawing at their vitals, the workers must put their heads together, and must as a class compel the passing of a law, the erection of an all-powerful social barrier, which will forbid even the workers themselves from entering into a free contract with capital when by the terms of that contract they and their race are condemned to death or sold into slavery.² In place of the pompous catalogue of the "inalienable rights of man", they put forward the modest Magna Charta of a legally limited working day—a charter which shall at length make it clear when the time "which the worker sells is ended, and when his own begins".³ What a change in the picture!

¹ Friedrich Engels, *op. cit.*, p. 5.

² In all the branches of industry that come under the Ten Hours Act, it has "put an end to the premature decrepitude of the former long-hour workers". *Reports, etc.*, October 31, 1899, p. 47.—"Capital [in factories] can never be employed in keeping the machinery in motion beyond a limited time without certain injury to the health and morals of the labourers employed; and they are not in a position to protect themselves." *Ibid.*, p. 8.

³ "A still greater boon is the distinction at last made clear between the worker's own time and his master's. The worker knows now when that which he sells is ended, and when his own begins; and by possessing a sure foreknowledge of this, is enabled to prearrange his own minutes for his own purposes." *Ibid.*, p. 32.—"By making them masters of their own time [the Factory Acts], have given them a moral energy which is directing them to the eventual possession of political power." *Ibid.*, p. 47.—With suppressed irony, and with cautious phrases, the factory inspectors hint that the existing 10-hours' law serves to free the capitalists, too, from some of their natural brutality as mere embodiments of capital, and gives them time for a little "culture". In former days, "the master had no time for anything but money; the servant had no time for anything but labour". *Ibid.*, p. 48.

CHAPTER NINE

RATE AND AMOUNT OF SURPLUS VALUE

In this chapter, as hitherto, we shall regard as constant the value of labour power, this meaning the part of the working day necessary for the reproduction or maintenance of labour power.

So much being assumed, when we know the rate of surplus value, we know also the amount of surplus value which an individual worker creates for the capitalist in a given period of time. If, for instance, the necessary labour amounts to 6 hours daily, corresponding to a gold quantum of 3s., then 3s. is the value of a day's labour power, is the amount of capital advanced for the purchase of a day's labour power. If, further, the rate of surplus value is 100 %, then the variable capital amounting to 3s. produces surplus value amounting to 3s., or the worker supplies daily 6 hours of surplus labour.

Now, a capitalist's variable capital is the monetary expression for the aggregate value of all the labour powers simultaneously employed by him. Its value is, therefore, equal to the average value of one labour power multiplied by the number of labour powers employed. Consequently, the value of labour power being constant, the magnitude of the variable capital is directly proportional to the number of the workers who are simultaneously employed. If the daily value of one labour power is 3s., then capital amounting to £15 (or 300s.) must be advanced to exploit 100 labour powers daily; and $n \times 3s.$ must be advanced to exploit n labour powers daily.

In like manner, if variable capital amounting to 3s. produces surplus value amounting to 3s. every day, then variable capital amounting to 300s. will produce surplus value amounting to 300s. every day, and variable capital amounting to $n \times 3s.$ will produce surplus value amounting to $n \times 3s.$ every day. Thus the amount of surplus value produced is equal to the surplus value which one worker's working day yields, multiplied by the number of the workers employed. Since, furthermore, the value of labour power

being constant, the amount of surplus value which an individual worker produces is determined by the rate of surplus value, we deduce the following, the first, law: *The amount of surplus value produced is equal to the amount of variable capital advanced, multiplied by the rate of surplus value; in other words, it is determined by the compound ratio between the number of labour powers exploited simultaneously by the same capitalist and the degree of exploitation of each individual labour power.*

Let the amount of surplus value be S , the surplus value produced by the individual worker in an average day be s , the amount of variable capital daily advanced in the purchase of one individual labour power be v , the sum total of the variable capital be V , the value of an average labour power be p , its degree of exploitation be

$$\frac{a'}{a} \left(\text{i.e. } \frac{\text{surplus labour}}{\text{necessary labour}} \right)$$

and the number of workers simultaneously employed be n , and we get the following:

$$S = \begin{cases} \frac{S}{V} \times V \\ p \times \frac{a'}{a} \times n \end{cases}$$

We assume throughout, not only that the value of an average labour power is constant, but also that the workers employed by a capitalist are average workers. There are exceptional instances in which the amount of surplus value produced does not increase proportionally to an increase in the number of workers exploited, but that is when the value of labour power does not remain constant.

It follows that, in the production of a definite amount of surplus value, a decrease in one factor can be made good by an increase in the other. If the variable capital diminishes, and at the same time there is a proportional increase in the rate of surplus value, there is no change in the gross amount of surplus value produced. If, in accordance with the foregoing assumptions, the capitalist has to advance 300*l.* in order to exploit 100 workers daily, and if the rate of surplus value is 50 %, then this variable capital of 300*l.*

will yield surplus value amounting to 150s., or of 100×3 working hours. If, now, the rate of surplus value be doubled, so that the working day consists no longer of 9 hours (6 hours of necessary labour + 3 hours of surplus labour) but of 12 hours (6 hours of necessary labour + 6 hours of surplus labour), while at the same time the variable capital is reduced to one half (only 50 workers being now employed instead of 100), the reduced variable capital of $50 \times 3s. = 150s.$ will continue to yield a variable capital of 150s., or, in this case, of 50×6 working hours. A reduction in the variable capital may thus be compensated by a proportional increase in the degree of exploitation of labour power; or, in other words, a reduction in the number of workers employed may be compensated by a proportional increase in the length of the working day. Within certain limits, therefore, the supply of labour exploitable by capital is independent of the supply of workers.* On the other hand, a decline in the rate of surplus value will not affect the gross amount of surplus value produced, if there is a corresponding increase in the magnitude of the variable capital, or (in other words) in the number of workers simultaneously employed.

Nevertheless, there are insuperable limits to the compensation for a reduction in the number of workers simultaneously employed, or a reduction in the amount of variable capital, by an increase in the rate of surplus value. No matter what the value of labour power may be, no matter whether the time during which labour power must be expended to maintain the worker be 2 hours or 10, the total value which a worker can produce day after day is always less than the amount of value in which 24 working hours are embodied, less than 12s. (if this be the monetary expression for 24 hours of materialised labour time). On our previous assumption, according to which 6 working hours are necessary every day for the reproduction of labour power, or for the replacement of the variable capital advanced for the purchase of labour power, a variable capital of 1500s. employing 500 workers at a 100 % rate

* It would seem that the vulgar economists know nothing of such a law. When they tell us that the market price of labour is determined by supply and demand, they believe that they have found a *fabrum* thanks to which they will be able, not like Archimedes to move the world, but to stop its motion!

of surplus value (this meaning that there is a 12-hour working day) will produce day by day surplus value amounting to 1500s., or 6×300 working hours. A capital of 300s. employing 100 workers daily at a 200 % rate of surplus value, or with a working day of 18 hours, will only produce surplus value amounting to 600s., or 12×100 working hours. Its total value product, the equivalent of the variable capital advanced plus surplus value, cannot, day in and day out, ever attain the sum of 1200s., or 24×100 working hours. An absolute limit is imposed upon the average working day, for by nature's decree it must always be less than 24 hours. Consequently there is an absolute limit upon the extent to which a reduction in the amount of variable capital can be made good by increasing the rate of surplus value, or (to put the matter in other words) to the extent to which a reduction in the number of the workers exploited can be made good by increasing the degree of exploitation of labour power. This, the second law, is self-evident. None the less, it is useful for the explanation of certain phenomena arising out of the persistent tendency of capital—a tendency to which we shall return—towards the utmost possible reduction in the number of workers employed, or in the variable portion of capital that is advanced for the purchase of labour power; a tendency that conflicts with capital's other persistent tendency towards producing the greatest possible amount of surplus value. Conversely, though the number of labour powers employed increase, though there be an increase in the magnitude of the variable capital, yet, if this increase be not proportional to a supposed decline in the rate of surplus value, then the amount of surplus value produced will fall.

A third law may be deduced from the determination of the amount of surplus value produced by the two factors, the rate of surplus value and the magnitude of the variable capital advanced. The rate of surplus value or the degree of exploitation of labour power, and the value of labour power or the magnitude of the necessary labour time, being given, it is self-evident that, the larger the variable capital, the larger is the amount of value and of surplus value produced. The limit of the working day being given, and the limit of its necessary portion being also given, the amount of value and surplus value which an individual capitalist produces will obviously depend upon the quantity

of labour he sets in motion. But, upon the given assumptions, this depends upon the quantity of labour power or upon the number of workers he exploits; and the number of workers depends, in its turn, upon the amount of variable capital advanced. For a given rate of surplus value and a given value of labour power, the amount of surplus value produced is therefore directly proportional to the amount of variable capital advanced. Well now, we know that the capitalist divides his capital into two portions. Part of it he spends upon the purchase of means of production, and this is the constant portion of his capital. Part of it he spends upon the purchase of living labour power, and this is the variable portion of his capital. On the basis of the same method of production, we find that in different branches of industry, the division of capital into constant and variable proportions differs. Moreover, within the same branch of production, the ratio between constant capital and variable capital changes in accordance with alterations in the technical basis and the social combination of the process of production. Still, no matter what may be the ratio between the constant and the variable constituent in a given aggregate of capital, no matter whether the ratio of the latter to the former be as 1:2 or as 1:10 or as 1:100, the working of the law just formulated is unaffected; for, as our earlier analysis has shown, though the value of the constant capital reappears in the value of the product as a whole, the value of the constant capital does not enter into the newly produced value product. Of course more raw cotton, spindles, etc., are needed to keep 1000 spinners at work than to keep 100 at work. But the value of these additional means of production may vary as much as you like, may increase or diminish or remain unchanged, may be large or small—still, all this has no influence upon the process of creating value by the labour powers that set the means of production in motion. Consequently, the law we are now considering takes this form: *The value of labour power and the degree of exploitation of labour power being constant, the amounts of value and surplus value respectively produced by different aggregates of capital are directly proportional to the magnitudes of the variable constituents of these different aggregates, that is to say to the amount of each which is converted into living labour power.*

This law obviously conflicts with all experience based upon the appearances of things. Every one knows that a cotton spinner who, when we reckon up the proportional allotment of his aggregate capital, is found to have a comparatively large amount of constant capital and a comparatively small amount of variable capital, does not for that reason pocket less profit or surplus value than a master baker who sets in motion a comparatively small amount of constant capital and a comparatively large amount of variable capital. For the solution of this apparent contradiction a great many intermediate terms are needed; just as from the outlook of elementary algebra a great many intermediate terms are needed before the student can understand that $\frac{0}{0}$ can represent a real magnitude. The

classical economists, though they never formulated this law, were instinctively convinced of its truth, for it is a necessary corollary of the general law of value. By a forcible, a violent, process of abstraction, they tried to escape the contradiction between the law and ostensible facts. We shall see later¹ how the writers of the Ricardian school broke their shins over this stumbling block. The vulgar economists, incapable of learning, are content, in this case as in others, to stake their money on appearances, and to ignore the law which regulates and explains them. They believe (in contrast with Spinoza) that "ignorance is a sufficient reason."

The labour which the aggregate capital of any society sets in motion from day to day, can be regarded as one aggregate working day. Let us suppose, for instance, that there are a million workers, and that the average working day is 10 hours; then the aggregate social working day will be one of ten million hours. *The length of this working day being constant* (no matter whether the limitations are imposed by material considerations or social ones), the amount of surplus value can only be increased by increasing the number of workers, by increasing the working population. Growth of population thus constitutes the mathematical limit to the production of surplus value by the social aggregate of capital. Conversely, if the size of the population be taken as constant, this limit will be constituted by the

¹ The matter will be discussed in Book Four.

possible prolongation of the working day.¹ We shall see in the next chapter that this law only holds good for the form of surplus value hitherto considered.

From our previous study of the production of surplus value we have learned that not every sum of money, or of value, is transformable into capital; that before this transformation can be effected there must be a definite minimum of money or exchange-value in the hands of an individual owner of money or commodities. The minimum of variable capital is the cost price of an individual labour power utilised for the whole year, day in and day out, in order to acquire therefrom surplus value. If this worker were himself the owner of the means of production with which he works, and if he were content to live as a worker, he would find (let us suppose) that the expenditure of necessary labour power for 8 hours daily would suffice for the reproduction of his means of subsistence. He would therefore need only the means of production requisite for 8 hours daily work. But the capitalist, who demands from the workers 4 hours (we will suppose) of surplus labour in addition to the 8 hours of necessary labour, needs an additional sum of money for the purchase of the additional means of production. On the basis of our assumptions, however, if he is himself to live in accordance with a worker's standard of life, if he is to be able to satisfy his most elementary needs, he will have to set out by employing two workers, merely in order to appropriate enough surplus value daily to meet this demand. Were that all, the end and aim of his production would only be to secure his own livelihood, at subsistence level; he would not be aiming at any increase of wealth—as is presupposed when we have to do with capitalist production. If he is to live but twice as well as an ordinary worker, and is to retransform into capital half of the surplus value he appropriates, he will have to multiply eightfold what we have described as the minimal unit of variable capital, will have to employ not less than 8 workers. Of course he can, like any worker in

¹ "The labour, that is the economic time, of society, is a given portion, say ten hours a day of a million people or ten million hours. . . . Capital has its boundary of increase. The boundary may, at any given period, be attained in the actual extent of economic time employed." *An Essay on the Political Economy of Nations*, London, 1881, pp. 47 and 49.

his employment, set his own hand to the work; but if he does this he will not be a real capitalist. He will only be a "small master", a cross between worker and capitalist. At a certain stage of capitalist production it becomes necessary that the capitalist shall be able to devote all the time during which he functions as capitalist (as personified capital, that is to say) to the appropriation and therefore to the control of others' labour, and to the sale of the products of this labour.¹ The medieval craft guilds therefore endeavoured, by forcible means, to prevent the transformation of guildmasters into capitalists; they imposed very narrow limits upon the numbers of workers whom any one master might employ. The owner of money or owner of commodities does not become metamorphosed into a real capitalist until the minimum amount advanced for production greatly exceeds the medieval maximum. Here, just as in the natural sciences, we find confirmation of the law discovered by Hegel in his *Logic*, that, at a certain point, what have been purely quantitative changes become qualitative.²

¹ "The farmer cannot rely on his own labour; and if he does, I will maintain that he is a loser by it. His employment should be, a general attention to the whole: his thrasher must be watched, or he will soon lose his wages in corn not thrashed out; his mowers, reapers, etc., must be looked after; he must constantly go round his fences; he must see there is no neglect; which would be the case if he was confined to any one spot." *An Enquiry into the Connection between the Price of Provisions and the Size of Farms, etc.*, by a Farmer, London, 1779, p. 12.—This work is extremely interesting. In it we can study the genesis of the "capitalist farmer", or "merchant farmer" as he is explicitly termed, and note his self-glorification as contrasted with the "small farmer", the man who is mainly concerned with producing a bare subsistence.—"The class of capitalists are from the first partially, and they become ultimately completely, discharged from the necessity of manual labour." *Faustsch of Lathen on the Political Economy of Nations*, by the Rev. Richard Jones, Hertford, 1832, Lecture III, p. 19.

² The molecular theory of modern chemistry, first scientifically worked out by Laurent and Gerhardt, rests on no other law.—[Supplement to the foregoing, by Friedrich Engels: In elucidation of a remark which will be somewhat obscure to those who know little about chemistry, I should explain that the author is here referring to what C. Gerhardt in 1843 was the first to speak of as "homologous series" of carbon compounds, each of which has its appropriate algebraical formula. Thus the general formula of the paraffins is C_nH_{2n+2} ; that of the normal alcohols is $C_nH_{2n+2}O$; that of the fatty acids is $C_nH_{2n}O_2$; and so on. In the examples just given, a simple quantitative addition of CH_2 to the molecular

The minimum amount of value which an individual owner of money or commodities must have at his disposal before he can blossom into a capitalist, varies at different developmental stages of capitalist production; and, at any given stage, varies in different branches of production, according as the particular technical requirements vary from instance to instance. Certain branches, or spheres, of production need, even in the early days of capitalist production, a minimum amount of capital which exceeds what is as yet to be found in the hands of any one individual. Sometimes, therefore, in such cases, State subsidies are furnished to private persons, as happened in France during Colbert's time, and as happens even to-day in many German States. Sometimes, however, a situation of this kind leads to the formation of companies with a legally established monopoly to carry on certain branches of industry and commerce¹—the chartered companies which were the forerunners of the modern joint-stock companies.

I shall not give a detailed account of the changes which, in the course of the process of production, have taken place in the relations between capitalist and wage worker; shall not dwell here upon the evolution of capital. It will be enough to mention a few salient points.

Within the process of production, capital acquired the command over labour, that is to say command over labour power at work, command over the worker. Capital personified, the capitalist, sees to it that the worker shall work properly, and with the required intensity.

Furthermore, capital has developed into a coercive relation whereby the working class is constrained to do more work than is prescribed by the narrow round of its own vital needs. As producer of diligence in others, as extractor of surplus value and exploiter of labour power, capitalism, in its energy, remorselessness, and efficiency, has outsoared all the earlier systems of production, those that were based upon forced labour.

formula produces, in each case, a substance that is qualitatively different. But Marx overestimated the importance of Laurent's and Gerhardt's contributions to the establishment of these great generalizations. Concerning this matter see Kopp, *Entstehung der Chemie*, Munich, 1879, pp. 700 and 718; and Schorlemmer, *Rise and Progress of Organic Chemistry*, London, 1879, p. 34.]

¹ Martin Luther speaks of such concerns as "monopoly companies".

To begin with, capital subjugates labour under the technical conditions extant in the historical epoch during which the conquest takes place. It does not bring about any immediate change in the method of production. Consequently, the production of surplus value in the form hitherto considered, by a simple prolongation of the working day, seems independent of any change in the method of production. It was no less effective in the old-fashioned bakehouses than it is in modern spinning mills.

When we contemplate the process of production simply as a labour process, the relation of the worker to the means of production is not a relation to them in their quality as capital; it is a relation to them in their quality as instruments and raw material that are subservient to his purposive productive activity. In a tannery, for instance, the skins he tans are for him simply the subject matter of his labour. It is not the capitalist's hide which he is tanning! But the position is very different as soon as we turn to contemplate the process of production as a means for promoting the self-expansion of capital, as a means for creating surplus value. Now, in the twinkling of an eye, the means of production are transformed into means for the absorption of others' labour. Instead of the worker using the means of production, the means of production are using the worker. Instead of being consumed by him as the material elements of his productive activity, they consume him as the ferment of their own vital process; and the life process of capital is simply and solely its movement as self-enlarging value. Blast-furnaces and factory buildings, when resting at night, and when therefore they are not absorbing live labour, are "mere loss" for the capitalist. That is why blast-furnaces and factory buildings establish a claim upon the night-work of labour power. The mere change of money into material factors of the process of production, into means of production, transforms these latter into a title and a right to the labour and the surplus labour of others. Let me give one more example to show how this sophistication peculiar to and characteristic of capitalist production, this inversion of the relation between dead and living labour, between value and the power which creates value, is reflected in the mirror of the capitalist mind. During the revolt of the British factory owners between 1848 and 1850, "the head of one

of the oldest and most respectable houses in the west of Scotland, Messrs. Carrile, Sons, and Co., of the linen and cotton thread factory at Paisley, a company which has now existed for about a century, which was in operation in 1752, and four generations of the same family have conducted it" . . . & . . . "very intelligent gentleman" wrote a letter to the "Glasgow Daily Mail" which appeared in that paper on April 25, 1849, under the caption "The Relay System". Here is a grotesquely naive extract: "Let us now . . . see what evils will attend the limiting to 10 hours the working of the factory. . . . They amount to the most serious damage to the mill owner's prospects and property. If he" [read, "his hands"] "worked 12 hours before, and is limited to 10, then every 12 machines or spindles in his establishment shrink to 10, and should the works be disposed of, they will be valued only as 10, so that a sixth part would thus be deducted from the value of every factory in the country."¹

In the brain of this man whose forbears have been capitalists in the west of Scotland for so many generations, capitalist outlooks are ingrained. For him the value of the means of production, the spindles and so on, is so much one and the same thing as their attribute as capital which enables them to expand their own value, to swallow daily a definite amount of the unpaid labour of others, that the head of the firm of Carrile, Sons, and Co. is actually under the delusion that, if he sells his mill, not only will he be paid for the value of the spindles, for the labour that is embodied in them and is necessary for the production of spindles of the same kind, but will in addition be paid for the surplus labour they help him daily to extract from the worthy Scots of Paisley. That is why he fancies the sale price of 12 spinning machines will shrink to that of 10, when the working day is shortened by a couple of hours!

¹ *Reports of Inspectors of Factories*, April 30, 1849, pp. 35-36.—Factory Inspector Stuart, himself a Scotsman, and (differing in this respect from the English factory inspectors) very much under the dominion of capitalist ways of thinking, remarks on this letter which he incorporates in his report that it is "the most useful of the communications which any of the factory owners working with relays have given to those engaged in the same trade, and which is the most calculated to remove the prejudices of such of them as have struggles respecting any change of the arrangement of the hours of work".

PART FOUR

PRODUCTION OF RELATIVE SURPLUS VALUE

CHAPTER TEN

CONCEPT OF RELATIVE SURPLUS VALUE

THE part of the working day which merely produces an equivalent for the value of the labour power expended during that time, the value the capitalist pays for, has hitherto been treated as a constant magnitude; and a constant in fact it is, under given conditions of production, at a particular economic stage of social development. Over and above this necessary labour time, the worker might work for 2, 3, 4, 6, or more hours a day. The rate of surplus value and the length of the working day were dependent upon the extent of this prolongation. Whereas the necessary labour time was constant, the length of the working day as a whole was variable. Now let us suppose a working day whose length and whose apportionment into necessary labour and surplus labour are given. For instance, let the line $a\text{---}b\text{---}c$, represent a twelve-hour working day, the portion $a\text{---}b$ representing 10 hours of necessary labour, and the portion $b\text{---}c$ representing 2 hours of surplus labour. The question is, how can the production of surplus value be increased, that is to say, how can the period of surplus labour be prolonged, without, or independently of, any prolongation of $a\text{---}c$.

Though $a\text{---}c$, the length of the working day, is regarded as fixed, $b\text{---}c$ is extensible, for, while it cannot (by hypothesis) be extended beyond its term c , which is the fixed end of the working day $a\text{---}c$, it can be extended in the opposite direction by pushing back its starting-point b towards a . Assume that in the line $a\text{---}b'\text{---}b\text{---}c$, $b'\text{---}b$ is equal to half $b\text{---}c$, and therefore represents one working hour. If, now, in the twelve-hour working day $a\text{---}c$, the point b is pushed back to b' , then, although the working day remains twelve hours as before, $b\text{---}c$ has been extended to become $b'\text{---}c$, and the surplus labour has been increased by half, from 2 hours to 3 hours. Evidently this extension of the surplus labour from $b\text{---}c$ to $b'\text{---}c$, from 2 hours to 3, is impossible unless the necessary labour is simultaneously reduced from $a\text{---}b$ to $a\text{---}b'$, from 10 hours to 9. There must

be a reduction of the necessary labour corresponding to the increase of the surplus labour; this meaning that part of the working time in which the worker has hitherto really been working for himself, has been transformed into working time in which he is working for the capitalist. What has been changed in our assumed instance is, not the total length of the working day, but its apportionment into necessary labour and surplus labour.

Evidently, on the other hand, when the length of the working day is given, and when the value of labour power is given, the length of the term of surplus labour is given as well. The value of labour power, that is to say the amount of labour time necessary to produce labour power, determines the amount of labour time necessary for the reproduction of that value. If 6d. represents the embodiment of one working hour, and if the value of a day's labour power is 3s., then the worker must work for ten hours daily in order to replace the value paid him daily by the capitalist for his labour power, or to produce an equivalent for the value of his necessary daily means of subsistence. Given the value of these means of subsistence, the value of his labour power is given;¹ and given the value of his labour power, the length of his necessary labour time is given. Now, the duration of the surplus labour is ascertained by subtracting the necessary labour time from the whole working day. Take ten hours from twelve, and two remain over. It is not easy to see how, under the given conditions, the duration of the surplus labour can be made to exceed two hours. No doubt the capitalist, instead of paying the

¹ The value of the average daily wage is determined by what the worker needs "so as to live, labour, and generate". William Petty, *Political Anatomy of Ireland*, 1692, p. 64.—"The price of labour is always constituted of the price of necessaries. . . . Whenever . . . the labouring man's wages will not, suitably to his low rank and station as a labouring man, support such a family as is often the lot of many of them to have", he does not receive proper wages, J. Vanderlint, *op. cit.* p. 12.—"The ordinary working man, whose only possessions are his arms and his industry, has nothing until he can sell his labour to others. . . . As regards every kind of labour, it must happen, and does actually happen, that the working man's wages are limited to what is necessary that he may obtain a subsistence." Turgot, *Réflexions, etc.*, in Œuvres. Daire's edition, vol. I, p. 10.—"The price of the necessities of life is, in fact, the cost of producing labour." Malthus, *Lecture into the Nature and Progress of Rent*, London, 1813, p. 48, note.

worker 3s., may pay 4s. 6d., or even less. For the reproduction of this value of 4s. 6d., 9 working hours would suffice; then, out of the 12-hour working day, 3 hours instead of 2 would be devoted to surplus labour, and the surplus value would increase from 1s. to 1s. 6d. But this result would only be secured by forcing the worker's wages down below the value of his labour power. With the 4s. 6d. he produces in 9 hours, he can command only $\frac{3}{4}$ of the amount of means of subsistence he was formerly able to command, and the reproduction of his labour power is consequently impaired. In such a case, surplus labour has been prolonged only by transcending its normal limits; its domain has been enlarged only by the usurpation of part of the domain of necessary labour time. Notwithstanding the important part the method plays in the actual movement of wages, it is excluded here by our presupposition that the commodities with which we are concerned, labour power as well as the others, are bought and sold at their actual value. If this is one of our primary assumptions, then the labour time requisite for the production of labour power, or the reproduction of its value, cannot be reduced by reducing wages to a point below the value of labour power; it can only be reduced when the value of labour power itself falls. For a given length of the working day, a prolongation of the surplus labour must be the outcome of a shortening of the necessary labour time; there must not be a shortening of the necessary labour time as the outcome of a prolongation of the surplus labour. In our example, the value of labour power must really decline by $\frac{1}{4}$ if the necessary labour time is to be reduced by $\frac{1}{4}$, from 12 hours to 9, so that the surplus labour can be correspondingly increased from 2 hours to 3.

Such a reduction of $\frac{1}{4}$ in the value of labour power implies, in its turn, that the quantity of the means of subsistence formerly produced in 12 hours can now be produced in 9. This is impossible, however, unless there is an increase in the productivity of labour. With given means, a bootmaker can make 1 pair of boots in a working day of 12 hours. If he is to make 2 pairs of boots in the same time, the productivity of his labour must have been doubled; and it cannot be doubled without a change in the instruments of labour, or in the methods of work, or in both of these. The conditions under which he produces,

his method of production, the labour process, must have been revolutionised. When, here, we speak of increasing the productivity of labour, we mean a change in the labour process whereby the labour time socially necessary for the production of a commodity is shortened, so that the same amount of use-value is produced by less labour, or more use-value by the same labour.¹ Hitherto, in considering the production of surplus value, we have assumed the method of production to be invariable. But if surplus value is to be produced by converting necessary labour into surplus labour, it will not suffice for capital to master the labour process in its traditional or extant form, and simply to increase the duration of that process. Capital must revolutionise the technical and social conditions of the labour process, must revolutionise the labour process itself, before the productivity of labour can be increased. Thus only can the value of labour power be lowered; thus only can the part of the working day necessary for the reproduction of this value be shortened.

I give the name of *absolute surplus value* to surplus value produced by a prolongation of the working day. On the other hand, to the surplus value that is produced by a reduction of the necessary labour time, and by a corresponding change in the relative proportions of the two components of the working day, I give the name of *relative surplus value*.

If the increase in the productivity of labour is to reduce the value of labour power, the increase must occur in branches of industry whose products determine the value of labour power—products which either form part of the ordinary means of subsistence, or are capable of replacing the means of subsistence in common use. But the value of a commodity is determined, not only by the quantity of labour which gives it its final form, but also by the quantity of labour embodied in the means of production. For instance, the value of a pair of boots is determined, not only by the labour of the bootmaker, but also by the value of the

¹ "When the arts are perfected, this meaning the discovery of new ways whereby a manufacture can be effected with fewer hands or (which amounts to the same thing) in less time than before. . . ." Gallani, *op. cit.*, p. 139.—"The cost of production can only be economized by economizing the amount of labour utilized for production." *Shenoudi, Essays, etc.*, vol. I, p. 22.

leather, the cobbler's wax, the thread, etc., used in making the boots. For this reason, an increase in productivity and a consequent cheapening of products in those branches of industry which supply the material elements of the constant capital requisite for producing the necessities of life, will also reduce the value of labour power. On the other hand, an increase of productivity in branches of industry which have nothing to do either with the production of the necessities of life or with the production of the means of production of these necessities, will have no effect on the value of labour power.

Of course the cheapening of a commodity can only reduce the value of labour power in proportion to the extent to which it plays a part in the reproduction of labour power. For example, shirts are among the necessities of life, but a shirt is only one essential among many. If shirts become cheaper, this will only reduce the amount which the worker has to spend upon shirts. But the aggregate of the necessities of life consists of nothing else than various commodities, the products of different industries; and the value of each of these commodities always forms an aliquot part of the value of labour power. This value decreases with the decrease of the labour time necessary for its reproduction; the total decrease being the sum of all the different curtailments of labour time effected in these different industries. The general result is treated here as if it were a direct result, and an immediate object, in each particular case. Of course, when a capitalist cheapens some commodity, shirts let us say, by increasing the productivity of labour, it does not necessarily follow that he has done so with the express purpose of reducing the value of labour power, and therefore the necessary labour time, to an extent proportional to the cheapening; but only in so far as he ultimately contributes to this result, does he contribute to a rise in the general rate of surplus value.¹ The general and necessary tendencies of capital must be distinguished from its phenomenal forms.

The way in which the immanent laws of capitalist pro-

¹ "Let us suppose . . . the products . . . of the manufacturer are doubled by improvements in machinery. . . . he will be able to clothe his workmen by means of a smaller proportion of the entire return. . . . and thus his profit will be raised. But in no other way will it be influenced." *Marx*, *op. cit.*, pp. 155-156.

duction are manifested in the movements of individual masses of capital; the way in which they assert themselves as the coercive laws of competition, and thus enter the consciousness of the individual capitalist in the form of motives—these matters lie outside the present scope of our enquiry. But it is clear from the outset that, just as the apparent motions of the heavenly bodies only become comprehensible to one who knows their real movements, which are not directly appreciable by our senses; so a scientific analysis of competition is only possible to one who has grasped the inner nature of capital. Nevertheless, for the better understanding of the production of relative surplus value, and simply upon the basis of the knowledge already gained, the following remarks may be made.

If one hour's labour is embodied in 6d., then in a twelve-hour working day a value of 6s. will be produced. Let us suppose that, with the given productivity of labour, 12 articles are produced in these 12 hours. We will assume that the value of the means of production worn out, together with that of the raw material used up, etc., is 6d. for each article. In these circumstances, each article costs 12s., being 6d. for the value of the means of production, and 6d. for the new value added in the process of elaboration. Now let us suppose that a capitalist is able to double the productivity of labour, with the result that, in a working day of 12 hours, 24 of the articles in question instead of 12 are produced. The value of the means of production per article remaining unchanged, the value of each article will now fall to 9d., of which 6d. represents the value of the means of production, and 3d. the new value added (under the new conditions) in the process of elaboration. Although the productivity of labour has been doubled, each working day still creates new value to the amount of 6s. and no more, but this new value is now distributed among 24 articles instead of (as formerly) among 12. To each article, therefore, there accrues only $\frac{1}{2}$ s. instead of $\frac{1}{2}$ s. of the total new value, 3d. instead of 6d.; or, which amounts to the same thing, when the means of production are transformed into product there is added, per article, only half an hour of labour time instead of one hour as formerly. The individual value of these commodities is now less than their social value; that is to say, each article costs less labour time than does the average specimen

from among the great mass of similar articles, produced under average social conditions. The average cost per article is 1s., the embodiment of 2 hours of social labour; the cost per article of those produced under the changed method of production is only 9d., the embodiment of only 1½ hours of labour. The real value of a commodity, however, is not its individual value but its social value; its value is measured, not by the labour time which in an isolated case it has actually cost the producer, but by the labour time socially requisite for its production. If therefore the capitalist who is using the new method sells his commodity at its social value of 1s., he sells it for 3d. more than its individual value, thus realising an extra surplus value of 3d. But, on the other hand, the working day of 12 hours is, for him, now represented by 24 articles instead of 12 as before. If he is to get rid of his product, the daily demand must be twice as great as it was; in other words, his market must be twice as extensive. Other things being equal, his commodities will only be able to command a larger market by lowering their price. He will therefore sell them below their social value while still above their individual value—at 10d. per article, let us say. Thus he will continue to pocket an extra surplus value, amounting in this case to 1d. per article. He will secure the extra surplus value no matter whether his commodity comes or does not come within the domain of the necessities of life; and no matter, therefore, whether or not its value plays a part in determining the general value of labour power. Hence, independently of the last consideration, every capitalist has a motive for doing what he can to cheapen his commodities by increasing the productivity of labour.

Nevertheless, even in this case the increased production of surplus value arises out of a shortening of the necessary labour time and a corresponding prolongation of surplus labour.* Let the necessary labour time be 10 hours, the value of a day's labour power being 5s.; the surplus labour

* "A man's profit does not depend upon his command of the produce of other men's labour, but upon his command of labour itself. If he can sell his goods at a higher price, while his workmen's wages remain unaltered, he is clearly benefited. . . . A smaller proportion of what he produces is sufficient to get that labour into motion, and a larger proportion consequently remains for himself." *Outlines of Political Economy*, London, 1832, pp. 49-50.

will then be 2 hours, and the surplus value produced every day will be 1s. But our capitalist is now producing 24 articles, and selling them at 10d. apiece, thus realising 20s. for the lot. Since the value of the means of production is 12s., $12\frac{1}{2}$ of the articles will serve only to replace the constant capital that has been advanced. The twelve-hour working day is embodied in the remaining 9 $\frac{1}{2}$ articles. As the price of the labour power is 5s., 6 articles represent the necessary labour time, and 3 $\frac{1}{2}$ articles the surplus labour. The ratio of the necessary labour to the surplus labour, which under average social conditions was 5:1, is now only 5:3. The same result can be arrived at in another way. The value of the product of the twelve-hour working day is 20s. Of this amount, 12s. belong to the value of the means of production, a value which is reproduced in the product. There are, therefore, 8s. left over as the monetary expression of the value in which the working day has become embodied. This monetary expression is higher than the monetary expression of average social labour of the same kind; for, of this, 12 hours are expressed by 6s. only. The labour which has exceptional productivity operates as intensified labour, creating in a given space of time more value than does average social labour of the same kind. Our capitalist, however, is still paying only 5s. as the value of a day's labour power. But whereas the worker formerly took 12 hours for the reproduction of this value, he now takes no more than 7 $\frac{1}{2}$ hours. His daily period of surplus labour has, therefore, been increased by 2 $\frac{1}{2}$ hours, and the amount of surplus value he produces has risen from 1s. to 3s. The capitalist who is using the improved means of production is therefore appropriating as surplus labour a larger proportion of the working day than are other capitalists in the same branch of production. He does individually what capital does collectively in the production of relative surplus value. But this extra surplus value disappears as soon as the new method of production becomes generalised, for then the difference in value between the individual value and the social value of the more cheaply produced commodities ceases to exist. The law that value is determined by labour time, the law which had exerted its sway over the capitalist who introduced the new method of production by making him sell his commodities for less than their social value, exerts its sway over his rivals in the form of a

coercive law of competition, and constrains them to adopt the new method of production.¹ Ultimately, therefore, the general rate of surplus value is only affected by the whole process when the increase in the productivity of labour is operative in branches of production which are concerned with the production of the necessities of life, so that the increase in productivity cheapens commodities that form elements of the value of labour power.

The value of commodities is inversely proportional to the productivity of labour. So is the value of labour power, since this is determined by the value of commodities. Relative surplus value, on the other hand, is directly proportional to the productivity of labour, increasing when productivity rises, and decreasing when productivity falls. Assuming the value of money to remain constant, an average social working day of 12 hours will always produce the same value, 6s., no matter the proportions in which this sum is distributed as between equivalent for the value of labour power, on the one hand, and surplus value, on the other. But if, owing to an increase in productivity, the value of the daily supply of the necessities of life, and therefore the value of a day's labour power, should fall from 5s. to 3s., the surplus value will increase from 1s. to 3s. Whereas under the old conditions 10 working hours were needed to reproduce the value of labour power, 6 working hours suffice under the new. Consequently, 4 working hours have been set at liberty, and can be annexed to the domain of surplus labour. It is, therefore, the persistent tendency of capital, the outcome of an inherent urge, to increase the productivity of labour, in order to cheapen commodities, and thus cheapen the worker.²

¹ "If my neighbour by doing much with little labour, can sell cheap, I must contrive to sell as cheap as he. So that every art, trade, or engine, doing work with labour of fewer hands, and consequently cheaper, begets in others a kind of necessity and emulation, either of using the same art, trade, or engine, or of inventing something like it, that every man may be upon the square, that no man may be able to undersell his neighbour." *The Advantages of the East India Trade to England*, London, 1720, p. 67.

² "In whatever proportion the expenses of a labourer are diminished, in the same proportion will his wages be diminished, if the restraints upon industry are at the same time taken off." *Considerations concerning Taking Off the Burden on Corn exported, etc.*, London, 1722, p. 7.—"The interest of trade requires, that corn and all provisions should be as cheap as possible; for whatever makes them

The absolute value of the commodity he produces is, in itself, of no interest to the capitalist. The only thing that interests him is the surplus value incorporated in it, and realisable by its sale. The realisation of the surplus value necessarily implies the refunding of the value that has been advanced. Inasmuch as relative surplus value is directly proportional to the development of the productivity of labour and grows when productivity increases, whereas the value of commodities, being inversely proportional to the development of the productivity of labour, falls when productivity increases—inasmuch as, therefore, one and the same process cheapens commodities, and swells the amount of surplus value incorporated in them—we can understand why the capitalist (though his only concern is with the production of exchange-values) is perpetually striving to lower the exchange-values of commodities. We can explain the contradiction, can solve the riddle, with which Quesnay, one of the founders of political economy, used to torment his adversaries by propounding it to them. For them the riddle was insoluble. "They agree", wrote Quesnay, "that the more, without disadvantage [to production], expenses and costly labours can be saved in the making of industrial products, the more profitable is such saving, seeing that it lowers the price of the products. Yet they believe that the production of the wealth which is the outcome of the labour of operatives consists in the increase in the exchange-value of their products."¹

Thus attempts to economise labour by increasing the productivity of labour* do not, in capitalist production,

dear, must make labour dear also. . . . In all countries where industry is not restrained, the price of provisions must affect the price of labour. This will always be diminished when the necessities of life grow cheaper." *Ibid.*, p. 3.—"Wages are decreased in the same proportion as the powers of production increase. Machinery, it is true, cheapens the necessities of life, but it also cheapens the labourer too." *A Pious Essay on the Cooperative Merit of Competition and Cooperation*, London, 1834, p. 27.

* *Dialogue sur le commerce et les travaux des artisans*, Daire's edition, Paris, 1846, pp. 128-129.

* "These speculators who are so friendly with the labour of the workers when they have to pay for it." J. N. Bédart, *Du monopole qui s'établit dans les arts industriels et le commerce*, Paris, 1828, p. 13.—"The employer will be always on the stretch to economise time and labour." Donald Stewart, *Lectures on Political Economy*, in *Works*, edited by Sir William Hamilton, Edinburgh, 1899, vol. III.

aim at reducing the length of the working day. They aim only at reducing the amount of labour time necessary for the production of a definite amount of commodities. Although the worker, thanks to the increased productivity of his labour, now produces in an hour 10 times as great an amount of commodities as before, or (to put the matter in another way) produces a single specimen of a commodity in $\frac{1}{10}$ of the time formerly required, he still has to work 12 hours a day, producing in a day 1200 articles where of old he produced 120. His working day may even have been increased, so that now he works 14 hours, produces 1400 articles, and so on. That is why, in the writings of such economists as McCulloch, Ure, Senior, and their tribe, we may read on one page that the worker ought to be grateful to capital for developing the productivity of labour; and on the next that he must show his gratitude by working henceforward for 15 hours a day instead of 10! Within the system of capitalist production, the development of the productivity of labour has as its aim to shorten the part of the working day during which the worker has to work for himself, in order to lengthen the part of the working day during which he can work for the capitalist free, gratis, and for nothing. How far this result can be achieved in other ways than by the cheapening of commodities will be disclosed by an examination of the special methods of producing relative surplus value. To these we shall now turn.

p. 318.—"Their [the capitalists'] interest is that the productive powers of the labourers they employ should be the greatest possible. On promoting that power their attention is fixed and almost exclusively fixed." R. Jones, *op. cit.*, lecture III.

COOPERATION

Capitalist production, as we have learned, does not really begin until an individual aggregate of capital employs a considerable number of workers at one time, so that the labour process is carried on upon a more comprehensive scale and yields a comparatively large quantity of products. Alike historically and conceptually, the starting-point of capitalist production is where a large number of workers are aggregated at one time and in one place (or, if you like, upon the same field of labour), under the command of one capitalist, for the production of one and the same kind of commodity. As regards the actual method of production, manufacture, for instance, in its early stages, can hardly be said to differ from the handicraft industry of the guilds, except in this respect, that in manufacture more workers are simultaneously employed by one unit of capital. The workshop of the medieval guildmaster has simply been enlarged.

Thus at first the difference is merely quantitative. We have seen that the mass of surplus value which a given amount of capital produces, is equal to the surplus value which an individual worker produces multiplied by the number of the workers who are simultaneously employed by that unit of capital. Their number does not affect the rate of surplus value or the degree of exploitation of labour power; nor, speaking generally, does any qualitative change in the labour process appear to affect the production of commodity values. This follows from the nature of value. If a twelve-hour working day is embodied in 6s., then 1200 such working days will be embodied in 6s. \times 1200. In the latter case, 12 \times 1200 working hours are incorporated in the product, just as in the former case 12 working hours are incorporated. In the production of value, a plurality of persons counts always as nothing more than a simple multiple of unity. As regards the production of value, therefore, it makes no difference whether 1200 workers produce in isolation, or are associated under the direction of one aggregate of capital.

Nevertheless, within certain limits there is a change. Work embodied in value, is work of an average social quality, this meaning that it is the manifestation of an average labour power. But an average among magnitudes can only be struck among numerous specimens which are of the same kind, however much they may differ in magnitude. In every branch of industry, the individual worker, Peter or Paul, differs to a greater or less extent from the average worker. These individual variations (or "errors" as they are sometimes called, in the technical terminology of mathematics) balance one another, and rule one another out, when we come to deal with a large number of workers at the same time. The famous sophist and sycophant Edmund Burke goes so far as to inform us, as the outcome of his practical experience as a farmer, that even "in so small a platoon" as five labourers individual differences are merged, so that any five English agricultural labourers taken haphazard will in a given time do exactly the same amount of work as any other five.¹ Be this as it may, there can be no doubt that the aggregate working day of a great number of workers simultaneously engaged, divided by the number of these workers, will give us one day of average social labour. Assume that the individual's working day is 12 hours. Then the working day of 12 workers simultaneously engaged will give an aggregate working day of 144 hours. Although the labour of each one of the dozen will deviate more or less from average social labour, and the individual worker will therefore need more time or less time to perform a particular operation, still the working day of each individual, being $\frac{1}{12}$ of the aggregate working day of 144 hours, has the character of an average social working day. For the capitalist who employs a dozen workers, the working day is the

¹ "Unquestionably, there is a great deal of difference between the value of one man's labour and that of another, from strength, dexterity, and honest application. But I am quite sure, from my best observation, that any given five men will, in their total, afford a proportion of labour equal to any other five within the periods of life I have stated; that is, that among each five men there will be one possessing all the qualifications of a good workman, one bad, and the other three middling, and approximating to the first and the last. So that in so small a platoon as that of even five, you will find the full complement of all that five men can earn." Edmund Burke, *op. cit.*, p. 18.— Cf. also Quetelet on the "average man" in various works.

aggregate working day of the whole dozen. The working day of each individual is an aliquot part of the aggregate working day, no matter whether the twelve are jointly engaged upon some occupation wherein their activities dovetail into one another, or have as the only connexion between their work the fact that they are all working for the same capitalist. If, on the other hand, the 12 workers are employed in pairs by half a dozen small masters, it becomes a matter of chance whether all these six masters produce the same amount of value, and therefore realise in each case the general rate of surplus value. Deviations would occur in individual instances. Should some particular worker need much more than the socially requisite amount of time for the production of a commodity, should it happen that in his case the individually necessary labour time differed considerably from the socially necessary labour time or from the average labour time, then his labour would not count as average labour, his labour power would not count as average labour power. It would either not be saleable at all, or else would only be saleable at a rate below the average value of labour power. A definite minimum of working efficiency is, therefore, assumed; and we shall see later that capitalist production finds a way of measuring this minimum. None the less, the minimum deviates from the average, though the minimum has to be paid in accordance with the average value of labour power. Of the six small masters, therefore, one would squeeze out more than the average rate of surplus value, another less. For society at large, the inequalities would rule one another out, but not for the individual masters. Thus the general law of the creation of value (the self-expansion of capital) is not fully realised for the individual producer unless he produces as a capitalist, as one who employs a considerable number of workers simultaneously, so that the labour he sets in motion has from the outset the characteristics of average social labour.*

Even when there is no change in the method of work,

* Professor Roucher claims to have discovered that a needlewoman employed by his wife for two days does more work than two needlewomen employed together for one day. The learned professor should not set out to study the process of capitalist production in the nursery—nor in circumstances where the principal person, the capitalist, is lacking.

the simultaneous application of the energies of a considerable number of workers effects a revolution in the objective conditions under which the labour process is carried on. The buildings in which the work is done, the storehouses for raw material, the implements and utensils employed simultaneously by the associated workers—in a word, parts of the means of production—are now jointly consumed. On the one hand, the exchange-value of these means of production is not increased; for the exchange-value of commodities (including means of production) is not increased simply because their use-value is more effectively utilized. On the other hand, the means of production are on a larger scale for associated than for unassociated labour. A room in which twenty weavers work at twenty looms must be larger than a room in which one independent weaver and a couple of journeymen work. But the building of one workshop for twenty persons costs less labour than does the building of ten workshops in each of which two persons work. Speaking generally, the value embodied in means of production that are concentrated for joint use on a large scale, does not grow proportionally with the growth in the comprehensiveness and in the useful effect of these means. When the means of production are used jointly, they transmit a smaller part of their value to each individual product; partly because the total value which they thus transmit is conveyed to a larger quantity of products, and therefore the amount transmitted to each specimen must be less; and partly because their value, though absolutely greater than the value of the means of production used by isolated workers, is relatively less, in view of the wider scope of their activity. In proportion to the fall in the value thus transmitted to the individual product by constant capital, there will be a fall in the total value of the individual commodity. The effect is the same as if the means whereby the commodity is produced had themselves been produced more cheaply. The economy we are now considering, the economy in the utilisation of the means of production, is exclusively due to the joint consumption of these means in the labour process by a number of workers. The economy attaches to such a use of the means of production as conditions of social labour, or as social conditions of labour, contrasted with the scattered and comparatively expensive means of production used by separate independent workers

or small masters; it attaches to them even when the many workers are merely brought together in the spatial sense, without any more thoroughgoing association of their labour. Part of the means of labour acquires this social character before the labour process as a whole has acquired a social character.

Speaking generally, thrift in the use of the means of production has to be considered under two aspects. First of all, in so far as it cheapens commodities, and thus reduces the value of labour power. Secondly, in so far as it changes the ratio between the surplus value and the total capital advanced, this total consisting of the sum of its constant and variable constituents. The latter point will be discussed in Part One of Book Three, to which (for the sake of a more connected treatment) I shall likewise postpone the consideration of various other matters bearing on the present topic. The march of our analysis dictates this splitting-up of the subject matter, and such a severance is accordant with the spirit of capitalist production. For since, in this method of production, the working conditions confront the worker as independent entities, thrift in the use of the means of production seems to him a special operation which is no concern of his, and one which therefore has no connexion with the methods which enhance his own individual productivity.

When numerous workers labour purposively side by side and jointly, no matter whether in different or in inter-connected processes of production, we speak of this as *cooperation*.¹

Just as the offensive power of a squadron of cavalry or the defensive power of a regiment of infantry is very different from the sum of the powers for offence or defence which the individual cavalymen or infantrymen can develop in isolation, so is the sum of the mechanical energies which unassociated workers can develop very different from the social potential which comes into being when many hands are simultaneously engaged upon the same undivided operation, such as raising a heavy weight, turning a winch, or removing an obstacle.²

¹ Destutt de Tracy names it "concurrency of forces". *Op. cit.*, p. 78.

² "There are numerous operations of so simple a kind as not to admit a division into parts, which cannot be performed without

In these cases, the effects that are achieved by associated labour, could not be achieved by unassociated labour; or, if achieved by the latter at all, would need a far longer time, or could only be effected on a pygmy scale. What is operative here is not merely an increase of individual productive power by cooperation, but also the creation of a new productive power, the productive power of masses.²

Apart from the new energy created by the fusion of many energies into one united energy, it usually happens in productive work that the very existence of social contact arouses emulation and induces a certain stimulation of the animal spirits, whereby the efficiency of each individual worker is promoted; with the result that a working day of 244 hours comprising the conjoined 12-hour working days of a dozen persons who cooperate, yields a much larger aggregate product than the total product of 12 workers each of whom works 12 hours in isolation, or than the total product of a solitary worker who works for a total of 244 hours during twelve days in succession.³ The reason is that man is by nature, if not (as Aristotle says) a political animal, at any rate a social one.⁴

the cooperation of many pairs of hands, I would instance the lifting of a large tree on to a waggon; . . . everything, in short, which cannot be done unless a great many pairs of hands help each other in the same undivided employment and at the same time." E. O. Wetherfield, *A View of the Art of Colonisation*, London, 1849, p. 158.

² "As one man cannot, and ten men must strive to lift a ton of weight, yet a hundred men can do it only by the strength of a finger of each of them." John Bellars, *Proposals for Raising a College of Industry*, London, 1696, p. 21.

³ When the same number of men are employed by one farmer on 300 acres, instead of by ten farmers each of whom farms 30 acres separately, "there is also an advantage in the proportion of servants which will not so easily be understood but by practical men; for it is natural to say, as 1 is to 4, so are 3 to 12; but this will not hold good in practice: for in harvest time and many other operations which require that kind of dispatch by the throwing many hands together, the work is better and more expeditiously done; 11. in harvest, 2 drivers, 2 loaders, 2 pitchers, 2 rollers, and the rest at the sickle or in the barn, will dispatch double the work that the same number of hands would do if divided into different gangs on different farms". *An Inquiry into the Consequences between the Present Price of Provisions and the State of Farms, by a Farmer*, London, 1773, pp. 7-8.

⁴ To be accurate, Aristotle defines man as by nature a town-dweller. For the days of classical antiquity this is just as characteristic as Benjamin Franklin's definition of man as by nature a tool-making animal is characteristic of Tudordom.

Although a number of persons may simultaneously perform identical or like operations, nevertheless the individual work of each member of a cooperative group may represent one particular phase in a labour process consisting of numerous phases which are traversed more quickly by the subject matter of labour because the process is carried out cooperatively. For example, if a dozen men form a chain upon a ladder in order to pass bricks from the foot of the ladder to the top, each of them is doing the same sort of thing, and yet the actions of each form parts of a connected series of operations, constitute specific phases in the general series of movements through which every brick must pass; and the 24 hands of the collective worker get the bricks to their destination more quickly than if the twelve men working separately were each to carry a brick up the ladder and then to come down for another.* The subject matter of labour passes through the same space in a shorter time. On the other hand, there is a combination of labour when a building is simultaneously erected from all sides at once, though the cooperating bricklayers are all doing the same thing, or, rather, like things. The combined working day of 144 hours, in which the subject matter of labour is simultaneously attacked from many sides (this being possible because the "combined" worker or "aggregate" worker has eyes and hands both in front and behind, and is in a sense omnipresent), effects the completion of the aggregate product more quickly than could 12 twelve-hour working days of a dozen workers each occupied more or less on his own, and therefore attacking the work in a comparatively one-sided way. Thanks to combined work, the various parts of the product ripen simultaneously.

In the foregoing examples, I have laid stress on the way in which the many persons each of whose work is complementary to that of the others do the same things or like things, for this simplest form of joint labour also plays a great part even in the most highly developed kinds of cooperation. But if the labour process is a complicated one, the mere fact that there are many cooperating workers makes it possible to allot the various operations to different hands, so that all the operations can be carried out simultaneously, and by these means the labour time neces-

* The instance is taken from F. Starbäck, *Tiderna för rikdoms skapelse*, second edition, Paris, 1890, vol. I, pp. 97-98.

wary for the completion of the aggregate product can be reduced.¹

In many industries there are critical moments, specific phases dependent upon the nature of the labour process with which we have to do, during which particular results must be secured. If, for instance, a flock of sheep has to be shorn, or if the wheat on so many acres of land has to be cut and stacked, the quantity and the quality of the product will depend upon the operation being begun on a certain day and finished within a definite period of time. In these cases, the optimum duration of the labour process is fixed in advance, just as it is in herring fishery. An isolated individual cannot get out of one day more than one working day, of 12 hours let us say; but if 100 workers join forces for a day, the 12-hour day is thereby expanded into an aggregate working day of 1200 hours. The shortness of the time available for the work is made good by the magnitude of the mass of labour which can be applied to the field of production within the specified period. The completion of the task as speedily as desirable is rendered possible by the simultaneous and conjoined utilisation of the working days of numerous individuals. The comprehensiveness of the useful result depends upon the number of those engaged in producing it, but where there is cooperation this number will always be smaller than would be the number of persons requisite to achieve the same result in the same time and place if they were working unassociated.² It is owing to the lack of such cooperation that, in the western States of the American Union, so much grain, and in the parts of Hindustan where English rule has destroyed the old communal system, so much cotton, are wasted year by year.³

¹ "If a complicated piece of work has to be done, several things can be done at the same time. One person does one thing while another person does another, and all contribute to an effect which an isolated individual could never have achieved. One sows while another sows, a third cuts the net or spears the fish, and the joint fishing is more successful than it could possibly be without the concurrence of forces." Deustott de Tracy, *op. cit.*

² "The doing of it [agricultural work] at the critical juncture, is of so much the greater consequence." *An Inquiry into the Convention between the Farmer and the Lord, &c.*, p. 9.—"In agriculture there is no factor more important than the factor of time." Liebig, *Ueber Theorie und Praxis der Landwirtschaft*, 1838, p. 15.

³ "The next evil is one which one would scarcely expect to find in a country which exports more labour than any other in the world,

On the one hand, cooperation enables the execution of a particular undertaking to be extended spatially, and is therefore demanded by the spatial relations of the subject matter of labour in certain labour processes, such as the drainage of land, the construction of dams, irrigation, the cutting of canals, the making of roads, the building of railways, and the like. On the other hand, cooperation facilitates a contraction of the arena of production relatively to the scale of production. Such a contraction of arena at the very time when the scale of operations is being extended, saves a great amount of needless outlay. It is made possible by the bringing of the workers into closer proximity, by the aggregation of various labour processes, and by the concentration of the means of production.¹

As compared with an equal sum of isolated individual working days, a combined working day produces larger quantities of use-value, and therefore reduces the duration of the labour time requisite for the production of a desired useful result. No matter whether, in a given instance, the greater productivity arises because the combined working day intensifies the mechanical potency of the labour; or because it expands the sphere of activity of the labour; or because it contracts the field of production relatively to the scale of production; or because at the critical moment it sets large amounts of labour to work, providing these large amounts in a comparatively short space of time; or because it arouses a spirit of emulation in the individual workers and intensifies their animal spirits; or because it

with the exception perhaps of China and England—the impossibility of procuring a sufficient number of hands to clean the cotton. The consequence of this is that large quantities of the crop are left unpicked, while another portion is gathered from the ground, when it has fallen, and is of course diseased and partially rotted, so that for want of labour at the proper season the cultivator is actually forced to submit to the loss of a large part of that crop for which England is so anxiously looking.” “Bengal Harbours,” bi-monthly overland summary of news, July 22, 1862.

¹ “In the progress of culture all, and perhaps more than all, the capital and labour which once loosely occupied 100 acres, are now concentrated for the more complete tillage of 100.” Although “relatively to the amount of capital and labour employed, space is concentrated, it is an enlarged sphere of production, as compared to the sphere of production formerly occupied or worked upon by one single independent agent of production”. R. Jones, *An Essay on the Distribution of Wealth, Part One, On Rent*, London, 1835, p. 191.

gives to the like operations of numerous persons a stamp of continuity and multiformity; or because it economises the means of production through organising their joint use; or because it impresses on individual labour the characteristics of average social labour—in any case, the specific productivity of the combined working day is the social productivity of labour, or the productivity of social labour. It is the direct outcome of cooperation. When a worker cooperates systematically with other workers, he transcends his individual limitations and develops the capabilities that belong to him as a member of a species.¹

Speaking generally, workers cannot collaborate directly without being brought together in one spot; their spatial aggregation is an essential preliminary to their cooperation. As for wage workers, these cannot cooperate unless one particular capitalist, or one particular aggregate of capital, employs them simultaneously, buys the labour power of all of them at once. The value of the combined labour power, the total sum needed for the wages of all the combined workers during a day or a week (as the case may be), must be in the capitalist's pocket before the workers are brought together in the process of production. A larger outlay of capital at one time is needed to pay 300 workers simultaneously, though it be only for one day, than to pay a small number of workers week by week throughout the year. Hence the number of the cooperating workers, or the scale of the cooperation, depends primarily upon the amount of capital which the individual capitalist is in a position to expend upon the purchase of labour power; in other words, it depends upon the extent to which one capitalist holds sway over the means of subsistence of a number of workers.

What applies here to variable, applies also to constant capital. For instance, a capitalist who employs 300 workers will have to spend more at one time upon raw material than will any one of 30 capitalists each of whom employs 10 workers. As regards the instruments of labour which the workers use in common, their value and their quantity do

¹ 'The powers of each man are very small, but the combination of these little forces achieves a greater result than the mere arithmetical summation of the same forces, inasmuch as when the forces are conjoined they do their work in a shorter time and with a wider effect.' G. H. Cuth, note to P. Varri, op. cit., vol. XV, p. 196.

not grow proportionally with the growth in the number of workers employed; but they grow considerably. The concentration of great quantities of the means of production in the hands of individual capitalists is a necessary material prerequisite for the cooperation of wage workers; and the scope of cooperation, or the scale of production, depends upon the extent of such concentration.

Primarily, the individual aggregate of capital had to reach a certain size before the number of workers simultaneously exploited, and therefore the quantity of surplus value produced was sufficient to free the employer himself from the need for participating in manual labour, sufficient to transform him from a small master into a capitalist, and thus to inaugurate capitalist production in the formal sense of the term. We now see that the same thing is an essential preliminary to the provision of the material conditions that will enable a number of scattered and mutually independent individual labour processes to be assembled into a combined social labour process.

Primarily, moreover, the subjection of labour to capital was nothing more than a formal consequence of the fact that the worker was working for the capitalist instead of for himself, and therefore had to work under the capitalist. But when a large number of wage workers come to co-operate, it becomes essential to the labour process, becomes a necessary condition of production, that they should work under the orders of capital. The command of the capitalist in the field of production has become no less indispensable than the command of the general in the battlefield.

Labour that is directly social, community labour on a large scale, always stands more or less in need of guidance, of a management which can establish harmony among the individual activities, and fulfil the general functions that belong to the movement of the unified productive organism as contrasted with the movements of the independent organs out of which the organism is made up. An individual violinist manages his own affairs; an orchestra needs a conductor. This function of guidance, superintendence, and arrangement devolves upon capital as soon as the labour subordinated to it becomes cooperative. As a specific function of capital, the function of management acquires special characteristics.

First of all, the end and aim, the driving force, of capitalist

production is an endeavour to promote to the uttermost the self-expansion of capital,¹ this meaning the production of the largest possible amount of surplus value, and therefore the maximum possible exploitation of labour power by the capitalist. But as the number of workers simultaneously employed grows, their power for resistance grows likewise; and capital needs therefore to exercise greater pressure in order to overcome this resistance. Capitalist guidance and control do not present themselves exclusively as a function arising out of the very nature of the social labour process and appertaining to that process; they present themselves also as a function whose purpose it is to exploit a social labour process, one that is the outcome of the inevitable antagonism between the exploiter and the living raw material he exploits. Thus proportionally to the growth in the comprehensiveness of the means of production which confront the wage worker as the property of another, there occurs an increase in the need for control of the purposive utilisation of these means.² Moreover, the cooperation of wage workers is nothing more than an effect of the capital which employs them simultaneously. The links whereby their labour is associated, the interconnexions whereby their unification into an aggregate productive organism is brought about, are external to themselves, inherent in the capital that brings and keeps them together. To them, therefore, the association of their labour presents itself, ideologically as the capitalist's plan, and in practice as the capitalist's authority; as the outcome of an alien will, that of one who subjects their doings to his own purposes.

Capitalist guidance and control thus present two different aspects, the reason being that the capitalist process of

¹ "Trade . . . is the sole end of trade," J. Vanderlint, *op. cit.*, p. 11.

² In its issue of June 3, 1886, the "Spectator", referring to the introduction of a sort of partnership between capitalist and workers in the Wirework Company of Manchester, writes: "The first result was a sudden decrease in waste, the men not seeing why they should waste their own property any more than any other master's, and waste is perhaps, next to bad debts, the greatest source of manufacturing loss." The same periodical tells us what it has discovered to be the fundamental defect of the cooperative experiments at Rochdale: "They showed that associations of workmen could manage shops, mills, and almost all forms of industry with success, and they immensely improved the condition of the men, but then they did not leave a clear place for masters." What a dreadful thing!

production is itself of a twofold nature, being, on the one hand, a social labour process intended to produce use-values, and, on the other hand, a process for promoting the self-expansion of capital, a process for making surplus value. Moreover, in respect of form, capitalist guidance and control are despotic. As the scale of cooperation extends, this despotism takes peculiar shapes. In the early days, the capitalist is emancipated from the need for himself performing manual labour, as soon as his capital attains that minimal size at which capitalist production really begins. So now, at this later stage of development, he is emancipated from the need of personally and continually supervising individual workers and working groups; and he delegates this task to a special kind of wage worker. Numerous workers collaborating under the command of a unit of capital must have, just like an army, commissioned officers (managers) and non-commissioned officers (foremen, overlookers, etc.) who command during the labour process in the name of capital. The work of supervision becomes the established and exclusive function of these latter. When the political economist compares the productive activities of independent peasants or independent artisans with production by slave labour on tropical and sub-tropical plantations, he tells us that in the latter case the labour of supervision must be reckoned in among the incidental expenses of production.² But when he turns to consider capitalist production, he identifies the function of management in so far as it arises out of the essential nature of the associated labour process, with the same function in so far as it is the outcome of the capitalist character of that process and is therefore rendered necessary by the fundamental antagonism between capitalist and worker.³ The capitalist

² Professor Calman, after telling his readers that the superintendence of labour is a leading feature of slave production in the southern States of the American Union, goes on to say: "The peasant proprietor [of the North], appropriating the whole produce of his soil, needs no other stimulus to exertion. Superintendence is here completely dispensed with." *The Slave Power*, London, 1862, pp. 48-49.

³ Sir James Stewart, who has a keen eye for the characteristic social distinctions between various methods of production, writes: "Why do large undertakings in the manufacturing way rely upon private industry, but by coming nearer to the simplicity of slavery?" *Principles of Political Economy*, London, 1767, vol. I, pp. 167-168.

is not a capitalist because he is a commander of industry; he becomes a commander of industry because he is a capitalist. Command in industry is an attribute of capital; just as, in the days of feudalism, command in war and a seat on the judge's bench were attributes of landed property.¹

The worker owns his labour power so long as he is in the market offering it for sale to the capitalist; and this, his individual, his isolated labour power, is the only thing he has to sell. Nor is such a state of affairs modified in any way because the capitalist buys the labour power of a hundred workers instead of one, enters into contracts with a hundred workers independently of one another. He can employ these hundred workers without making them cooperate. What the capitalist pays is the value of the separate labour powers of a hundred individuals, not the value of their combined labour power. As independent persons, these workers are isolated individuals who have all entered into relations with the same capitalist, but have not entered into relations one with another. Their cooperation does not begin till the labour process begins, but in the labour process they have already ceased to belong to themselves. When they start their participation in that process, they become incorporated into capital. As cooperators, as members of a working organism, they are themselves only a particular mode of existence of capital. Consequently, the productivity of the worker as an associated worker is the productivity of capital. The enhanced productivity of labour that results from association is something that develops free, gratis, and for nothing as soon as the workers are placed in certain conditions—and capital places them in these conditions. Because the superior productivity of associated labour costs capital nothing, and because (on the other hand) the worker does not manifest this superior productivity until his labour belongs to capital, the superior productivity seems to be a natural attribute of capital, is erroneously ascribed to a productive energy supposed to be immanent in capital.

How amazing can be the effects of simple cooperation may be learned from an examination of the titanic works of the Assyrians, the Egyptians, the Etruscans, etc., of

¹ Auguste Comte and his school, who deduce the overwhelming indispensability of the lords of capital, might, by parity of reasoning, deduce the overwhelming indispensability of the feudal lords of the soil.

ancient days. "It has happened in times past that these oriental States, after supplying the expenses of their civil and military establishments, have found themselves in possession of a surplus which they could apply to works of magnificence or utility, and in the construction of these their command over the hands and arms of almost the entire non-agricultural population has produced stupendous monuments which still indicate their power. The towering valley of the Nile . . . produced food for a swarming non-agricultural population, and this food, belonging to the monarch and the priesthood, afforded the means of erecting the mighty monuments which filled the land . . . In moving the colossal statues and vast masses of which the transport creates wonder, human labour, almost alone, was prodigally used. . . . The number of the labourers and the concentration of their efforts sufficed. We see mighty coral reefs rising from the depths of the ocean into islands and firm land, yet each individual depositor is puny, weak, and contemptible. The non-agricultural labourers of an Asiatic monarchy have little but their individual bodily exertions to bring to the task, but their number is their strength, and the power of directing these masses gave rise to the palaces and temples, the pyramids, and the armies of gigantic statues of which the remains astonish and perplex us. It is that confinement of the revenues which feed them, to one or a few hands, which makes such undertakings possible." The power that used to be concentrated in the hands of Asiatic and Egyptian kings or of Etruscan theocrats and the like, has in modern society been transferred to the capitalists—it may be to individual capitalists; or it may be to collective capitalists, as in joint-stock companies.

Cooperation in the labour process, as we see it in the dawn of civilisation (among tribes living by the chase,* for instance; or in agriculture as practised by village communities in Hindustan), is based, on the one hand, upon communal

R. Jones. *Textbook of Lectures*, etc., pp. 57-58.—The ancient Assyrian, Egyptian, and other collections in London and the various continental European capitals make us eye-witnesses of this cooperative labour process.

* Linguist is perhaps right when he says, in his *Fabrics des arts anciens*, that hunting was the earliest form of cooperation, and man-hunting (war) the first form of the chase.

ownership of the means of production, and, on the other hand, upon the fact that among primitives the navel string connecting the individual with the tribe or the community has not yet been severed. The individual member is part of the community in the same sense in which the individual worker bee is part of the hive. But in both the respects named, such primitive cooperation is sharply distinguished from capitalist cooperation. Again, when we consider the occasional application of cooperation on a very large scale in the ancient world, in the Middle Ages, and in modern colonial life, we see that it is there based upon direct relations of dominion and servitude; and usually, indeed, upon slavery. Capitalist cooperation, on the other hand, presupposes the existence of the free wage worker who sells his labour power to capital. Historically considered, however, it develops in opposition to peasant agriculture, and to independent craftsmanship (whether this be or be not organised in guilds).¹ As contrasted with these, capitalist cooperation does not manifest itself as a particular historical form of cooperation. We have to say, rather, that cooperation manifests itself as a historical form peculiar to the capitalist process of production, and as one which specifically differentiates that process.

Just as the social productivity of labour, developed thanks to cooperation, assumes the specious semblance of being the productivity of capital, so does cooperation itself endue the aspect of being a specific form of the capitalist process of production, as contrasted with production by isolated independent workers or even by small masters. The change to cooperation is the first change undergone by the actual labour process when subjected to the dominion of capital. This change occurs spontaneously. Its essential presupposition, the simultaneous occupation of numerous wage workers in the performance of the same labour process, is the starting-point of capitalist production—a starting-point which coincides with the birth of capital. If therefore,

¹ Small-scale peasant agriculture and independent handicrafts were both to some extent the foundations of the feudal method of production, and in part made their appearance side by side with capitalist production after the break-up of the feudal system. They were also the economic bases of the classical commonwealth in its prime days, after the primitive oriental communal ownership of the land had disappeared, and before slavery had gained effective control of production.

on the one hand, the capitalist method of production appears to be historically indispensable for the transformation of the labour process into a social one; on the other hand, this social form of the labour process manifests itself as a method utilised by capital to increase the productivity of that process, and thus to facilitate the more profitable exploitation of labour.

In its elementary form, as hitherto considered, cooperation appears as an accompaniment of production upon an extended scale, but does not as yet constitute a firmly established and characteristic constituent of a particular developmental epoch of capitalist production. At most we can regard it as approximately this in the early days of manufacture (when manufacture is still predominantly handicraft in type);¹ and in that kind of large-scale agriculture which corresponds to the manufacturing period, and is not greatly distinguished from peasant agriculture except as regards the number of the workers simultaneously employed and the comprehensiveness of the means of production aggregated for their use. Simple cooperation remains the dominant form of cooperation in those branches of production in which capital is at work upon a large scale, but where neither the division of labour, nor machinery, as yet plays an important part.

Cooperation is always a basic element of capitalist production. While it constitutes the germ of more complex forms, it continues to exist side by side with these in its simple or rudimentary shape as above described.

¹ "Whether the united skill, industry, and emulation of many together on the same work be not the way to advance it? And whether it had been otherwise possible for England to have carried on her woollen manufacture to so great a perfection?" Berkeley, *The Querist*, London, 1730, p. 34, § 331.

DIVISION OF LABOUR AND MANUFACTURE

I. TWOFOLD ORIGIN OF MANUFACTURE.

COOPERATION based on the division of labour assumes its most typical form in manufacture, and throughout the manufacturing period strictly so called it is dominant as the characteristic form of the capitalist process of production. Speaking roughly, this manufacturing period extends from the middle of the sixteenth century to the last third of the eighteenth century.

Manufacture originates in two ways.

The first way is when workers practising different and independent crafts, through whose hands a given article must pass on its way to completion, are assembled in one workshop under the control of one capitalist. For instance, in former days, a carriage was the joint product of the labour of a great number of independent craftsmen, such as wheelwrights, harness-makers, tailors, locksmiths, upholsterers, turners, haberdashers, glasers, painters, polishers, gilders, etc. In the manufacture of carriages, these various craftsmen are assembled in one workplace, where they work into one another's hands. Of course, a carriage cannot be gilded before it is made. But if a great many carriages are made simultaneously, part of them can be in the gilder's hands while another part is going through an earlier phase of the process of production. So far, we are still upon the platform of simple cooperation, which finds its materials ready to hand in the shape of persons and things. Very soon, however, an important change takes place. The upholsterer, or other craftsman, when occupied exclusively in carriage-making work, gradually, for lack of practice, loses the power of carrying on his old handicraft to its full extent. On the other hand, since his activities are now confined to one groove, he learns to work more efficiently within that groove. Originally, carriage building was a combination of independent handicrafts. In course of time, the process of manufacture is split up into a number,

of detail operations, each of which crystallises into the exclusive function of one particular workman, the manufacture as a whole being carried on by these workmen jointly. Similarly, the manufacture of cloth and a series of other manufactures arise through the combination of different handicrafts under the control of single units of capital.²

The second way in which manufacture originates is the reverse of the foregoing. A number of operatives who all do the same thing or similar things, such as paper-making, type-founding, or needle-making, are simultaneously employed in the workshop by the same unit of capital. This is cooperation in its simplest form. Each of these operatives (perhaps with one or two apprentices) makes the whole commodity, performing the various operations needed for its manufacture one after another. In his work, he follows the old methods of his handicraft. But, before long, external conditions render it necessary that the concentration of the workers in one and the same spot, and the simultaneity of their labour, shall be utilised in a different way. For example, it becomes necessary to make a larger quantity of finished commodities within a given space of time. For this reason, the work is redistributed. Instead of having the different operations carried out by one operative in serial order, the operations are separate one from another, are isolated, are carried on side by side. Each of them is allotted to a different operative, and all of them are carried on simultaneously by the cooperating workmen. This chance redistribution of the work being repeated on several occasions, manifests its peculiar advantages, and in course of time crystallises into

² The following quotation presents us with a more modern instance of the way in which manufacture thus originates. The silk-spinning and weaving of Lyons and Nîmes "is quite patriarchal. It employs a great number of women and children, but without either exhausting them or corrupting them. It leaves them in their lovely valleys of the Drôme, the Var, the Isère, and the Vaucluse, where they rear silkworms and unwind the cocoons; it never brings them into a real factory. Although, here, the division of labour assumes a special character. There are numerous winders, throwsters, dyers, spinners, weavers, etc.; but they are not assembled in one establishment, do not depend upon one and the same master; they are all independent". A. Blanqui, *Cours d'économie industrielle*, edited by A. Hahn, Paris, 1838-43, p. 79.—Since Blanqui wrote the above, the various independent workers have been to some extent assembled in factories.

a systematic division of labour. The commodity, instead of being the individual product of an independent operative who performs numerous operations, has been transformed into the social product of a group of operatives, each of whom hencforward performs one, and only one of the necessary partial operations. The operations which, in the case of a paper-maker belonging to a German guild, were merged in one another as the successive actions of one operative, become, in the Dutch paper manufacture, a number of simultaneous partial operations performed by numerous cooperating workers. The needle-maker of the Nuremberg guild is the prototype of the English needle-maker. But whereas the former undertook a series of perhaps as many as twenty operations one after another, in the case of the English needle manufacture as many as twenty needle-makers will simultaneously perform twenty different operations. Further experience will lead to each of these twenty operations being itself subdivided, so that the subdivisions become the exclusive functions of individual workers.

We see, then, that the origin of manufacture, its development out of handicraft, is a twofold process. On the one hand, manufacture arises through the combination of heterogeneous independent handicrafts, which lose their independence, and become so far specialized as to be, in the end, nothing more than mutually complementary partial operations in the process of the production of one and the same commodity. On the other hand, it may originate through the cooperation of operatives all performing one and the same handicraft, by a process in which the handicraft is split up into its various particular operations, which become isolated and independent of one another to such an extent that each is exclusively performed by one particular workman. We see, therefore, on the one hand, that manufacture introduces the division of labour into a productive process, or develops that division further; on the other hand, that it combines handicrafts which were formerly separate. Whatever the starting-point, the final result is the same, namely a productive mechanism whose instruments are human beings.

For the right understanding of the division of labour in manufacture, it is essential to grasp the following points.

First of all, the analysis of the process of production into

its particular phases is here strictly coincident with the break-up of a handicraft into its various partial operations. But, whether complex or simple, the organisation of the work is still on handicraft lines, and is therefore dependent upon the strength, skill, speed, and celerity with which the individual worker handles his tools. Handicraft is still the basis. As long as the process of production has this narrow technical basis, no really scientific analysis of it is possible, seeing that every partial process through which the product goes must be one that can be carried out as a handicraft. For the very reason that skill in craftsmanship remains the basis of the process of production, each workman is exclusively assigned to a partial function, and his labour power becomes an instrument of this partial function for the rest of his life.

Secondly, this division of labour is a special kind of cooperation, and many of its advantages are the outcome of the general nature of cooperation, not of the nature of this particular form.

2. THE DETAIL WORKER AND HIS IMPLEMENT.

When we study the matter more closely, we see, to begin with, that a worker who carries out one and the same simple operation for a lifetime, converts his whole body into the automatic specialised instrument of that operation. Consequently, he will be able to perform it more quickly than an operative who has to perform a whole series of different operations. But the combined, the collective worker who constitutes the living mechanism of manufacture consists of nothing but an aggregate of such specialised detail workers. Hence, when we compare manufacture with independent handicraft, we find that by the manufacturing system more is produced in a shorter time. The productivity of labour is enhanced.¹ Moreover, the method of detail work is perfected after it has become the exclusive function of one person. The perpetual repetition of one and the same limited operation, and the concentration of the worker's attention in this narrow field, teach him, by experience, how to achieve the desired useful and with a

¹ "The more any manufacture of great variety shall be distributed and assigned to different artists, the more exact needs be better done and with greater expedition, with less loss of time and labour." *The Advantages of the East Indian Trade*, London, 1780, p. 71.

minimum expenditure of energy. Since several generations of workers live together at the same time and cooperate in the same manufacture, the tricks of the trade they acquire by experience become firmly established, accumulate, and are handed down.¹

In actual fact, manufacture produces the skill of the detail worker by reproducing within the workshop, and by systematically driving to an extreme, the differentiation of trades which it finds ready to its hand as a natural growth of society. On the other hand, the transformation of detail work into the life occupation of an individual, corresponds to the tendency of earlier societies to make occupations hereditary, to petrify them in castes or to ossify them in guilds—the latter process replacing the former when particular historical conditions give rise to a degree of individual variability incompatible with the caste system. Castes and guilds are the expression of the same natural law as that which regulates the subdivision of plants and animals into species and subspecies, the only difference being that at a certain phase of development the hereditariness of castes or the exclusiveness of guilds is decreed as a social law.² "The muslins of Dacca in fineness, the calicoes and other piece goods of Coromandel in brilliant and durable colours, have never been surpassed. Yet they are produced without capital, machinery, division of labour, or any of those means which give such facilities to the manufacturing interest of Europe. The weaver is merely a detached individual working a web when ordered of a customer, and with a loom of the rudest construction, consisting sometimes of

¹ "Easy labour is transmitted skill." Thomas Hodgkin.

² "The arts also have . . . in Egypt reached the requisite degree of perfection. For it is the only country where artificers may not in any way meddle with the affairs of another class of citizens, but must follow that calling alone which by law is hereditary in their clan. . . . In other countries it is found that tradesmen divide their attention between too many objects. At one time they try agriculture, at another they take to commerce, at another they busy themselves with two or three occupations at once. In free countries, they mostly frequent the popular assemblies. . . . In Egypt, on the contrary, an artificer is severely punished if he meddles with affairs of State, or carries on several trades at once. Thus there is nothing to disturb their application to their calling. . . . Moreover, since they inherit from their forefathers numerous rules, they are eager to discover fresh advantages." Diodorus Siculus, *Bibl. Hist.* 1, I, c. 74.

a few branches or bars of wood, put roughly together. There is even no expedient for rolling up the warp; the loom must therefore be kept stretched to its full length, and becomes so inconveniently large, that it cannot be contained within the hut of the manufacturer, who is therefore compelled to ply his trade in the open air, where it is interrupted by every vicissitude of the weather."¹ The Hindu, like the spider, acquires this proficiency thanks only to the specialised skill which accumulates from generation to generation, and is handed down by inheritance from father to son. Nevertheless, the work of such an Indian weaver is extremely complicated in comparison with that performed by most manufacturing workers.

The handicraftsman who carries out one after another the various detail processes that are needed in the making of a finished product, must from time to time change his place, and change his tools. The transition from one operation to another interrupts the flow of his work, making, as it were, gaps in his working day. The gaps close up when the worker performs one and the same operation continuously throughout the working day; or they are reduced in proportion as the changes of operation become less frequent. The increased productivity is due, either to an increased expenditure of labour power in a given space of time (that is, to increased intensity of labour), or else to a reduction in the unproductive consumption of labour power. The excess in the expenditure of energy which is necessitated by every transition from rest to movement, is made up for by prolonging the normal velocity when once acquired. On the other hand, persistent labour of a uniform kind impairs the intensity and vigour of a man's animal spirits, which find refreshment and stimulus through change of activities.

The productivity of labour is dependent, not only upon the skill of the worker, but also upon the goodness of his tools. Implements of one kind, such as knives, drills, gimlets, hammers, etc., can be used in various labour processes; and, in the same labour process, one particular instrument may lend itself to different purposes. But as soon as the various operations in a labour process are

¹ *Historical and Descriptive Account of British India*, etc. By Hugh Murray and James Wilson, etc. Edinburgh, 1832, vol. II, p. 449.—The Indian loom is upright, this meaning that the warp is stretched vertically.

divorced one from another, and as soon as every partial operation performed by a detail worker has acquired the most suitable and therefore the most exclusive form, changes in the tools which have hitherto subserved various purposes become necessary. The direction of such changes of form is determined by experience of the particular difficulties which arise when the unaltered form of implement is used. The differentiation of the instruments of labour, thanks to which instruments of the same kind acquire particular and permanent forms adapted to particular useful purposes, and their specialisation, in virtue of which such highly specialised implements can be utilised to the full only by specialised detail workers, are characteristic of manufacture. In Birmingham alone, about five hundred different kinds of hammer are manufactured, and it must not be supposed that each of these serves for the wants of some particular process of production, for in many cases there are numerous varieties for the performance of different operations as parts of the same process. The manufacturing period simplifies, improves, and multiplies the implements of labour by adapting them to the exclusive and peculiar functions of the detail worker.¹ Therewith, it simultaneously creates one of the material conditions for the existence of machinery, which arises out of a combination of simple instruments.

The detail worker and his instruments form the simple elements of manufacture. Let us now turn to consider the aspect of manufacture as a whole.

3. THE TWO FUNDAMENTAL FORMS OF MANUFACTURE: HETEROGENEOUS MANUFACTURE AND ORGANIC MANUFACTURE.

Manufacture is divided into two fundamental forms. Though these may pass into one another here and there,

¹ In his speech-making work, the *Origin of Species*, Darwin writes, with reference to the natural organs of plants and animals: "As long as the same part has to perform diversified work, we can perhaps see why it should remain variable, that is, why natural selection should not have preserved or rejected each little deviation of form so carefully as when the part has to serve for some one special purpose. In the same way that a knife which has to cut all sorts of things may be of almost any shape, whilst a tool for some particular purpose must be of some particular shape."—*Everyman's Library Edition*, p. 141.

substantially they constitute two perfectly distinct varieties. More especially do they come to play entirely different roles when, in the end, manufacture is transformed into modern large-scale industry carried on by machinery. This twofold character arises from the nature of the product. Either the finished article is formed by the simple mechanical fitting together of partial products independently made, or else it arises thanks to a series of interdependent processes and manipulations.

A locomotive, for example, consists of more than five thousand independent parts. But we cannot take a locomotive as a specimen of the first kind of manufacture properly so-called, for it is a product of large-scale industry. A watch will serve our purpose, and we may remember that William Petty used it to illustrate the division of labour in manufacture. Whereas at one time a watch was the individual product of a Nuremberg handicraftsman, to-day it is the social product of a very large number of detail workers, such as mainspring-makers, dial-makers, hairspring-makers, jewelled hole makers, ruby-lever-makers, hand-makers, case-makers, screw-makers, gilders, with numerous sub-divisions, such as wheel-makers (the makers of brass wheels, and the makers of steel wheels are distinct), axle-makers, movement-makers, *acheteurs de pignon* (those who fix the wheels on the axles, polish the facets, etc.), pivot-makers, *planteurs de anissage* (those who put various wheels and axles in the works), *faiseurs de barillet* (those who cut the cogs in the wheels, make the holes of the right gauge, etc.), escapement-makers, cylinder-makers for cylinder escapements, escapement-wheel-makers, balance-wheel-makers, makers of the regulating apparatus, *planteurs d'échappement* (escapement-makers proper); then there are the *repasseurs de barillet* (those who finish the box for the spring, etc.), steel polishers, wheel polishers, screw polishers, figure painters, dial enamellers (those who melt the enamel on to the copper), *fabricants de pendant* (those who make the rings by which the case is hung), *finisseurs de charnière* (those who put the brass hinge in the cover, etc.), *faiseurs de secret* (those who put in the springs that open the case), graveurs, *ciseleurs*, *polisseurs de boîte*, etc., etc., and last of all the *repasseur*, the man who fits the whole watch together and hands it over in a going state. Only a very few parts of the watch pass through several hands, and all

the separate fragments are not finally assembled until they come into the hands of the one who ultimately brings them together as a mechanical whole. In this instance, as in the case of similar finished articles, the relation between the final product and its diversified elements is of such a nature that it is a chance matter whether the detail workers are brought together under one roof or not. Sometimes the partial operations may themselves be carried on as independent handicrafts, as happens in the cantons of Vaud and Neuchâtel; whereas in Geneva there are large watch factories in which the detail workers cooperate directly under the control of a single unit of capital. Even in the latter event, the dial, the springs, and the case are seldom made in the factory. In the watch trade, the concentration of the workers under one roof for manufacturing purposes is rarely profitable, for competition is greater among the workers who do their work at home; the splitting up of the work of production into a number of heterogeneous processes leaves little scope for the use of joint means of production; and when the manufacture is dispersed, the capitalist is saved the outlay on workshops, and so on.* But the position of these detail workers who, though they work at home, work for a capitalist (a manufacturer, an *établisseur*), is very different from that of the independent craftsman who works for his own customers.†

* In the year 1854, Geneva produced 80,000 watches, which does not amount to one-fifth of the number of watches produced in the canton of Neuchâtel. In Chaux-de-Fonds, which may be regarded as nothing more than one great watch manufactory, twice as many watches are produced every year as in Geneva. In the years 1850 to 1861, Geneva produced 750,000 watches. See *Report from Geneva on the Watch Trade; Reports by N.M.'s Secretariat of Embassy and Legation on the Manufactures, Commerce, etc., No. 6, 1863*. When we are concerned with such an article as a watch, in which the finished article consists of a number of parts fitted together, the want of cohesion between the processes into which the production is split up makes it extremely difficult to convert such a manufacture into a branch of modern large-scale industry carried on by machinery; but in the matter of a watch, there are two other obstacles to such a transformation, namely the smallness and delicacy of the constituent parts, and the fact that a watch is an article of luxury. Hence the great variety of watches, so that in the best London houses scarcely a dozen watches are made alike in the course of a year. On the other hand, the watch factory of Vacheron and Constantin, in which machinery has been successfully used, turn out, at most, three or four different sizes and kinds of watch.

† Watchmaking is a typical instance of heterogeneous manu-

The second kind of manufacture, its complete form, produces finished articles which pass through interdependent phases of development, a graduated series of processes. For example, in the process of needle-making, the wire out of which a needle is made passes through the hands of from seventy-two to ninety-two detail workers.

In so far as manufacture of this kind effects a combination of handicrafts that were primarily distinct, it reduces the spatial separation between the particular phases in the production of a finished product. The time needed for passing from one stage to the next is shortened, and the labour which brings about this passage is reduced.⁴ In comparison with handicrafts, manufacture thus gains in productive energy, and this gain results from the general cooperative character of manufacture. On the other hand, the division of labour, which is the characteristic principle of manufacture, requires an isolation of the various phases of production, which become independent one of another as so many detail handicraft operations. The establishment and the maintenance of a connexion between the isolated functions, necessitates the continual transport of the article from one hand to another and from one process to another. From the outlook of large-scale industry, this presents itself as a characteristic and costly disadvantage, and is one immanent in the principle of manufacture.⁵

When we consider a definite quantity of raw material, such as rags in paper manufacture or wire in needle manufacture, we find that, in the hands of the various detail workers, it passes through a temporal succession of phases of production, until the final form is reached. But if we contemplate the workshop as an integral mechanism, we see that the raw material exists simultaneously in all its phases of production at one and the same time. With some of his many hands equipped with tools, the collective worker (the

factor), and in this trade there are exceptional facilities for studying the before-mentioned differentiation and specialisation of the instruments of labour that result from the subdivision of handicrafts.

⁴ "In so close a cohabitation of the people, the carriage must needs be less." *The Advantages of the East Indian Trade*, p. 106.

⁵ "The isolation of the different stages of manufacture consequent upon the employment of manual labour adds immensely to the cost of production, the loss mainly arising from the mere removal from one process to another." *The Industry of Nations*, London, 1855, pt. II, p. 200.

combination of all the detail workers) draws the wire, while simultaneously with other hands and other tools he stretches it, with others cuts it, points it, and so on. The various detail processes, though successive in time, are spatially juxtaposed. Thanks to this, more finished commodities are produced within a given time.* It is true that the simultaneity is an outcome of the general cooperative form of the process as a whole; but manufacture does not merely find the conditions for cooperation ready to hand, since in part it creates them by the subdivision of handicraft activities. Yet it effects this social organisation of the labour process only by chaining each worker to the performance of some particular detail.

Since the partial product of each detail worker is at the same time nothing more than a particular developmental phase in the production of the finished product, that which each worker or group of workers has completed serves as raw material for the next group. The end of one's work is the starting-point of another's work. Thus each workman furnishes employment to his successor. The amount of labour time requisite for the achievement of the desired useful purpose in each partial process is determined by experience, and the integral mechanism of the manufacture rests upon the assumption that in a given period of labour time a given result will be attained. Only on that assumption can the various complementary labour processes go on uninterruptedly, simultaneously, and continuously. It is obvious that this direct dependence of the operations, and therefore of the workers, one upon another, makes it incumbent upon each individual to expend no more than the amount of time necessary for his particular function. Thus the continuity, uniformity, regularity, orderliness,[†] and above all intensity of the work, become very different in such a manufacturing

* Division of labour "produces also an economy of time, by separating the work into its different branches, all of which may be carried on into execution at the same moment. . . . By carrying on all the different processes at once which an individual must have executed separately, it becomes possible to produce a multitude of pins completely finished, in the same time as a single pin might have been either cut or pointed". Dagald Stewart, *op. cit.*, p. 319.

† "The more variety of artists to every manufacture, . . . the greater the order and regularity of every work, the same must needs be done in less time, the labour must be less." *The Advantages of the East India Trade*, p. 68.

process from what they are in independent craftsmanship or even in simple cooperation. The rule that no more than the socially necessary labour time shall be expended in the production of a commodity would seem, in commodity production as a general rule, to be established by the force of competition; for, to put the matter simply, each individual producer must sell the commodity at its market price. In manufacture, however, the turning out of a given quantity of product in a given amount of labour time is a technical law of the process of production itself.¹

But different operations need different periods of time for their performance, and therefore in equal spaces of time unequal quantities of partial products are manufactured. If the same worker is to carry on the same operation and nothing else day in and day out, for different operations there must be differing numbers of workers. For instance, in a type-foundry, where the founder casts 2000 type an hour, while the breaker breaks up 4000, and the rubber polishes 8000, there must be 4 founders and 2 breakers and 1 rubber. Here, once more, we have the principle of cooperation in its simplest form, the simultaneous employment of many persons who are doing the same thing; but, now, this is the expression of an organic relation. Manufacturing division of labour, therefore, not only simplifies and multiplies the qualitatively different organs of the social collective labourer, but it also establishes a fixed mathematical ratio between the numbers of these organs, deciding the relative number of the workers or the relative size of the working groups for each specific function. While subdividing the social labour process qualitatively, it fixes a quantitative rule and a proportionality for this process.

When once the most suitable numerical ratios for the different groups of detail workers have been determined by experience for a particular scale of production, that scale can only be extended by employing a multiple of each particular working group.² Furthermore, there are certain

¹ Nevertheless, in many branches of industry, the manufacturing system attains this result imperfectly, owing to lack of the power of accurate control of the general chemical and physical conditions of the process of production.

² "When [from the peculiar nature of the produce of each manufactory], the number of processes into which it is most advantageous to divide it is ascertained, as well as the number of individuals to be

kinds of work which an individual can do just as well upon a larger scale as upon a smaller scale—for instance, supervision, the transport of partial products from one phase of production to another, and so on. Consequently, the rendering of these functions independent, their allotment to specific workers, will only become advantageous when the number of the workers engaged is multiplied, but this multiplication must affect all the groups proportionally.

An individual group, comprising a number of workers who carry on the same partial function, consists of homogeneous elements, and forms a special organ of the integral mechanism. In certain manufactures, however, the group itself is the organised body of labour, and the integral mechanism is formed by the repetition or multiplication of these elementary productive organisms. Take, for example, the manufacture of glass bottles. This is divided into three essentially distinct phases. First of all comes the preparatory phase, the preparation of the ingredients out of which glass is made, the mixing of the sand, chalk, etc., and the heating of this mixture to form a mass of molten glass.¹ In this first stage, various detail workers are employed; and the same is true of the final phase, the removal of the bottles from the drying furnace, their sorting, packing, etc. Between the first phase and the last, comes the glass-making properly so called, the elaboration of the molten mass of glass. At each mouth of the furnace there is at work a group called "the hole", comprising one bottle-maker or finisher, one blower, one gatherer, one putter-up or whetter-off, and one taker-in. These five detail workers are the special organs of a single working body, which acts only as a unit, can only work when the five above-named directly cooperate. If one member of the group of five persons is wanting, the composite body is paralysed. But a single glass furnace has several openings—in England, from four to six—each of which has an earthenware melting-pot full of molten glass, and each of which provides occupation

employed, then all other manufactories which do not employ a direct multiple of this number will produce the article at a greater cost. . . . Hence arises one of the causes of the great size of manufacturing establishments." C. Babbage, *On the Economy of Machinery*, first edition, London, 1832, ch. XXI, pp. 172-173.

¹ In England, the melting furnace is distinct from the glass furnace in which the glass is manipulated. In Belgium, the same furnace is used for both processes.

for a similarly constituted working group of five persons. The organisation of each group is directly based upon the division of labour, whereas the tie between the various similar groups is one of simple cooperation—a cooperation thanks to which the means of production (in this instance, the melting furnace) can be more economically used because it is used jointly. Such a furnace, with its four to six groups, forms a glass-house, and a glass manufactory contains a number of such glass-houses, together with the apparatus and the workers needed for the initial and final stages of the process of production.

Finally, just as manufacture develops, in part, out of the combination of various handicrafts, so it can develop into a combination of various manufactures. For example, the larger English glassworks make their own earthenware pots, for the success or failure of the product depends largely on the goodness of these. Here we have the manufacture of a means of production combined with the manufacture of the product. Conversely, the manufacture of a product can be combined with manufactures for which it itself serves as raw material, or with whose products it is subsequently combined in one way or another. For instance, the manufacture of flint glass is sometimes combined with glass-cutting and brass-founding—brass being used for the metal settings of various articles made of glass. The different combined manufactures then form departments (more or less widely separated in space) of one integral manufacture; but they are at the same time independent productive processes, each having its own division of labour. Although such combined manufactures offer many advantages, they do not, on the simple basis of manufacture, acquire a real technical unity. Effective unity cannot arise until machine-factory takes the place of manufacture.

In the manufacturing period, a reduction of the amount of labour time necessary for the production of commodities soon became a deliberate principle of operation¹. Here and there during this period, machines came into use, especially in order to carry on certain simple preliminary processes capable of being performed upon a large scale and needing a great expenditure of energy. For instance, in paper

¹ Cf. the previously quoted, *The Advantages of the East Indian Trade*, and also the writings of W. Petty, John Bellers, Andrew Yarranton, and J. Vanderlint.

manufacture, the pulping of the rags was effected in paper mills; and in metal works, the pounding of the ores took place in stamping mills.¹ The Roman Empire handed down the elementary form of all machinery in the water mill.² During the period of handicraft were made the great discoveries of the mariner's compass, gunpowder, printing, and the automatic clock. On the whole, however, machinery played the subordinate part assigned to it by Adam Smith in comparison with the division of labour.³ Momentous were the scattered applications of machinery in the seventeenth century, for they gave the great mathematicians of those days a practical basis and a stimulus for the creation of the modern science of mechanics.

The specific "machinery" of the manufacturing period is, however, the collective worker formed by a combination of many detail workers. The various operations which are carried out one after another by the producer of a commodity, and which fuse to form the totality of his labour process, make on him claims of various kinds. In one process he must develop more power, in another he must display more skill, in a third he must show closer attention, and so on. Now, no one individual is endowed with all these qualities to equal perfection. After the various operations have been isolated and have become independent, the

¹ As late as the end of the sixteenth century, mortars and hand-sieves were still used in France for grinding and washing ores.

² The whole evolutionary history of machinery can be traced in the history of corn mills. In England, a factory is still called a "mill". In German technological literature belonging to the first decades of the nineteenth century, the word "Mühle" is still used, not only for all machinery driven by the forces of nature, but also for all manufactories in which apparatus of a machine type is employed.

³ As we shall learn in fuller detail when we come to study the theories of surplus value, Adam Smith did not bring forward a single new proposition concerning the division of labour. What characterized him as the most notable political economist of the manufacturing period was the stress he laid on the division of labour. The scanty importance he attached to machinery gave rise, in the early days of large-scale industry, to Landiside's polemic, and subsequently, in a later phase of development to that of Ure. Furthermore, Adam Smith overlooked the differentiation of the instruments of labour (a differentiation in which the detail workers of manufacture themselves took an active part) with the invention of machinery. As far as the latter was concerned, it was not manufacturing workers, but men of learning, handicraftsmen, and even farmers (Brindley), who played an important part.

workers are separated, classified, and grouped in accordance with their predominant qualities. If their natural endowments form the basis on which the division of labour is established, on the other hand manufacture, once introduced, develops in them working powers which nature has designed only for narrow and specialised functions. The collective worker possesses all the productive qualities in an equal degree of excellence, and can at the same time use these in the most economical way, for he applies all his organs (individualised in particular workers or working groups) exclusively to the performance of specific functions.¹ What is narrowness, and even imperfection, in the detail worker, becomes perfection when he is regarded as no more than a limb of the collective worker.² The habit of doing only one thing transforms him into an unfailing instrument, while his connexion with the integral mechanism compels him to work with the regularity of a part of a machine.³

Since some of the functions of the collective worker are simple and some complex, some lower and some higher, his organs, the individual labour powers, need very different degrees of training, and therefore have very various values. Consequently, manufacture develops a hierarchy of labour powers, with a corresponding gradation of wages. If, on the one hand, the individual worker is allotted for life to a restricted function, it is, on the other hand, equally true that the various operations carried out by the members of this hierarchy are adapted to their natural and acquired skill.⁴ Every process of production requires, however,

¹ "The master manufacturer, by dividing the work to be executed into different processes, each requiring different degrees of skill or of force, can purchase exactly that precise quantity of both which is necessary for each process; whereas, if the whole work were executed by one workman, that person must possess sufficient skill to perform the most difficult, and sufficient strength to execute the most laborious, of the operations into which the article is divided." *Habington, op. cit.*, ch. 18.

² For instance, there often occurs an abnormal development of particular groups of muscles, curvature of bones, etc.

³ One of the Inquiry Commissioners asked how the "young persons" were kept steadily to their work. Mr. William Marshall, the general manager of a glass manufactory, gave a very good answer, saying: "They cannot well neglect their work; when they cease begin, they must go on; they are just the same as parts of a machine." *Children's Employment Commission, Fourth Report, 1865*, p. 247.

⁴ Dr. Ure, in his apotheosis of large-scale industry, brings out the peculiar characteristics of manufacture more plainly than did the

certain simple manipulations, which every individual is capable of performing. These manipulations are then severed from their connexion with the more pregnant moments of activity, and become ossified into exclusive functions.

In every handicraft over which manufacture extends its grip, there consequently arises a class of so-called unskilled labourers, a class for which there was no place in handicraft industry. While developing a one-sided speciality to perfection at the cost of the whole working capacity, manufacture begins to make a speciality of the lack of all progressive development. Side by side with the hierarchical gradation, we have a simple subdivision of the workers into skilled and unskilled. As regards the unskilled, the costs of training are reduced to nil; as regards the skilled, since their function has been greatly simplified, these costs are much lower than they were in the case of the handicraftsman. In both cases, the value of labour power declines.¹ There are exceptions to this law in so far as the decomposition of the labour process generates new comprehensive functions which did not exist at all in handicraft, or existed in a much smaller degree. The comparative decline in the value of labour power which results from the disappearance of or the reduction in the costs of craft training, implies a more intensive utilisation of capital, for everything that shortens the time necessary for the reproduction of labour power, extends the domain of surplus labour.

4. DIVISION OF LABOUR IN MANUFACTURE, AND DIVISION OF LABOUR IN SOCIETY.

First we considered the origin of manufacture; then its simple elements, the detail worker and his implement; and earlier economists, who lacked his polemical interest in the matter; and more plainly, even, than his contemporaries such as Babbage, who does indeed excel Ure as mathematician and mechanic, but is inclined to regard large-scale industry exclusively from the outlook of manufacture. Ure says that the appropriation of the workers to specific operations "forms the very essence of the division of labour". Elsewhere he describes the division of labour as "adaptation of labour to the different talents of men"; and, lastly, he speaks of the whole manufacturing system as one "for the division or gradation of labour", as "the division of labour into degrees of skill", etc. Ure, *Philosophy of Manufactures*, pp. 19-23.

¹ "Each handicraftsman being . . . enabled to perfect himself by practice in one point, became . . . a cheaper workman." Ure, *op. cit.*, p. 19.

finally the mechanism of manufacture as a whole. We shall now briefly discuss the relation between the division of labour in manufacture, and the division of labour in society, which latter forms the general basis of all commodity production.

If we keep labour alone in view, we can describe the subdivision of social production into its main departments, such as agriculture, industry, etc., as the division of labour in general; and we can describe the splitting up of these departments of production into varieties and subvarieties as the division of labour in particular; while, last of all, we can describe the division of labour within the workshop as the division of labour in detail.¹

The division of labour in society, and the corresponding restriction of individuals to particular occupations, arises, like the division of labour in manufacture, from contraposed starting-points. Within a family, and, after further development, within a tribe,² there occurs a spontaneous division of labour in accordance with differences in sex and age, a division therefore based on a purely physiological foundation. The material subjected to this division of labour expands proportionally with the extension of the community, with the increase of population, and above all thanks to conflicts between different tribes and the sub-

¹ "Division of labour ranges from the separation of the most widely different professions one from another, to that division in which a number of workmen share in the preparation of one and the same product, as in manufacture," Storch, *Cours d'économie politique*, Paris edition, vol. I, p. 273.—"Among the peoples which have attained to a certain degree of civilization, we find three types of the division of industry: the first, which we shall call general, is the differentiation between agricultural, manufacturing, and trading producers, these relating to the three main branches of national industry; the second, which may be called special, is the division of each kind of industry into species; the third division of industry, finally, is what may be called the division of occupation or work properly so called, the division which takes effect within the distinct arts and trades, the one which occurs within most manufactories and workshops." Skarbeck, *op. cit.*, pp. 84-85.

² Subsequent and exhaustive studies of the primitive condition of mankind led the author to the conclusion that the original course of development was not from the family into the tribe; but, conversely, that the tribe was the primitive and spontaneously developed form of human association based upon kinship, so that the various forms of the family were the outcome of the incipient loosening of tribal bonds.—Note added by Engels to the third edition.

juration of one tribe by another. On the other hand, as I have remarked before, an exchange of products originates at points where different families, tribes, or communities come into contact—for, in the early stages of civilisation, the independent units that confront one another are not private individuals, but families, tribes, etc. Different communities discover in their natural environment different means of production and different means of subsistence. Consequently their methods of production, modes of life, and products, are different. It is owing to the existence of these spontaneously developed differences that, when communities come into contact, there occurs an exchange of their several products one for another, so that these products gradually become transformed into commodities. Exchange does not create the difference between the spheres of production; it brings the differing spheres of production into relation one with another, and thus transforms them into more or less interdependent branches of a social collective production. Thus the social division of labour originates through exchange between spheres of production that are primarily distinct from and independent of one another. But where the physiological division of labour is the starting-point, the special organs of a directly interdependent whole break away from one another, decompose (the exchange of commodities with alien communities giving the main impetus towards this process of decomposition), and they then become independent to such an extent that a connexion between the various kinds of work is kept up only by the exchange of products as commodities. In the one case what was formerly independent has become dependent, whereas in the other case what was formerly dependent has become independent.

The foundation of all highly developed division of labour that is brought about by the exchange of commodities is the cleavage between town and country.¹ We may say that the whole economic history of society is summarised in the

¹ Sir James Stewart has handled this topic better than any one else. How little his book, which was published ten years before the *Wealth of Nations*, is known to-day can be inferred from the fact that the admirers of Malthus do not even know that the first edition of that author's *Principles of Population* was—apart from its purely declaratory contents, mainly a transcription from Stewart (though Wallace and Townsend were additional sources).

development of this cleavage between town and country, though this is a matter into which we cannot go further at present.

Just as for the division of labour in manufacture it is indispensable that there should be as material substratum a certain number of simultaneously employed workers, so for the division of labour in society it is indispensable that population should be fairly large and fairly dense—for size and density of population here takes the place of an agglomeration of a number of workers in the same workplace.¹ This density is, however, relative. A country which, though its population is comparatively sparse, has well-developed means of communication, is, substantially, more thickly populated than a country with more people in it where the means of communication are undeveloped. From this point of view we may say that the northern states of the American Union are more thickly populated than Hindustan.²

Since the production and circulation of commodities are the general prerequisites of the capitalist method of production, the manufacturing division of labour cannot arise until the division of labour within society has developed to a certain extent. Conversely, the manufacturing division of labour has a reactive effect in developing and multiplying the social division of labour. As the instruments of labour undergo differentiation, the industries which produce these instruments become differentiated more and more.³ If the manufacturing system invades an industry which has hitherto been carried on in connexion with others, either as a chief industry or as a subordinate industry (all being under the control of one producer), these industries immediately

¹ "There is a certain density of population which is convenient, both for social intercourse, and for that combination of powers by which the produce of labour is increased." James Mill, *op. cit.*, p. 30.—"As the number of labourers increases, the productive power of society augments in the compound ratio of that increase, multiplied by the effects of the division of labour." Thomas Hodgskin.

² Owing to the great demand for cotton since 1860, in some of the most thickly populated districts of the East Indies cotton production has expanded at the cost of the production of rice. The result has been the occurrence of local famines, because, owing to the imperfection of the means of communication, the inadequacy of the rice crop in one district cannot be compensated by import from other districts.

³ Thus, as early as the seventeenth century, the manufacture of stretchers became a special branch of industry in Holland.

separate one from another, and become mutually independent. If the manufacturing system invades one particular phase in the production of a commodity, the various phases of its production become transformed into so many independent industries. I have already pointed out that when the finished article is nothing more than a mechanically-assembled complex of partial products, the detail occupations may reestablish themselves as independent handicrafts. In order to carry out the division of labour more fully within a manufacture, a single branch of production may split up into various manufactures, some of which may be entirely new—the forms the process takes being dependent upon differences in the raw materials, or upon the existence of various kinds of one and the same raw material. As early as the first half of the eighteenth century in France, more than a hundred different kinds of silk stuff were woven. In Avignon there was a law to the effect that "every apprentice must devote himself to one kind of manufacture, and must not learn how to prepare several kinds of stuff at once". The territorial division of labour, in accordance with which particular branches of production become rooted in particular districts, acquires a new impetus from the manufacturing system of industry, which makes the most of all local peculiarities.¹ In the manufacturing period, the division of labour within society was greatly accelerated by the expansion of the world market and by the colonial system, both of which form part of the general conditions of existence of the period in question. This is not the place in which to show in fuller detail how the division of labour invades all the other spheres of social life in addition to the economic sphere, and how everywhere it forms the basis for the growth of specialisation, giving rise to a development of one faculty at the expense of all other faculties, to an extent which led A. Ferguson, Adam Smith's teacher, to exclaim: "We make a nation of helots, and have no free citizens."²

¹ "Whether the woollen manufacture of England is not divided into several parts or branches appropriated to particular places, where they are only or principally manufactured: fine cloths in Somersetshire, coarse in Yorkshire, long sils at Exeter, silks at Sudbury, crapes at Norwich, linseys at Kendal, blankets at Whitney, and so forth." *Barbauld, The Quærist*, 1750, p. 320.

² A. Ferguson, *History of Civil Society*, Edinburgh, 1750, pt. IV, section II, p. 283.

Despite the numerous analogies and ties between the division of labour in society and the division of labour in a workshop, the two must not be regarded as different grades of the same process, for they are essentially distinct. The analogy between them is most undeniable when there is an invisible bond connecting various branches of industry. For instance, the cattle breeder produces hides, the tanner makes the hides into leather, and the bootmaker makes the leather into boots. Each of them produces a graded product, and the finished form is the combined output of all their separate labours. Then we have to consider the manifold branches of work which supply means of production for the cattle breeder, the tanner, and the bootmaker. It is, therefore, quite possible to imagine, with Adam Smith, that this social division of labour is only subjectively distinguished from the manufacturing division of labour, is distinguished only for the onlooker, who in the case of manufacture can see at one glance the different detail operations being performed in the same spot, whereas in the case of the social division of labour the interconnexions are obscured by their wide spatial distribution and by the great number of the separate kinds of labour.¹ But what is the nature of the connexion between the independent labours of the cattle breeder, the tanner, and the bootmaker? The tie is the existence of their respective products as commodities. What, on the other hand, characterises the manufacturing division of labour? The fact that the detail

¹ Adam Smith tells us that the division of labour appears to be greater in manufactures properly so called because "those employed in every different branch of the work can often be collected into the same workhouse, and placed at once under the view of the spectator. In these great manufactures [...] on the contrary, which are destined to supply the great wants of the great body of the people, every different branch of the work employs so great a number of workmen, that it is impossible to collect them all into the same workhouse, . . . the division is not near so obvious". *Wealth of Nations*, bk. I, ch. I.—The famous passage in the same chapter beginning with the words, "Observe the accommodation of the most common artificer or day labourer in a civilised and thriving country", in which the author goes on to show how numerous and varied are the industries that contribute to the satisfaction of the wants of an ordinary worker, is copied almost word for word from Bernard de Mandeville's Remarks to his *Fable of the Bees*, or *Private Vices, Publick Benefits*. The Remarks were added to the 1714 edition.

worker does not produce commodities.² It is only the joint product of a number of detail workers which becomes transformed into a commodity.³ The division of labour within society is brought about by the sale and purchase of the products of various branches of industry, whereas the interconnection of the detail labours in manufacture is brought about by the sale of different labour powers to the same capitalist, who uses them as a combined labour power. Manufacturing division of labour implies the concentration of the means of production in the hands of one capitalist; the social division of labour implies the dispersion of the means of production among many mutually independent producers of commodities. Whereas in manufacture the iron law of proportionality subjects particular masses of workers to particular functions, chance and caprice have free play in the distribution of the producers of commodities and their means of production among the various branches of industry in society. It is true that the different spheres of production are continually endeavouring to arrive at an equilibrium, inasmuch as, on the one hand, every producer of commodities must produce a use-value,

² "There is no longer anything which we can call the natural reward of individual labour. Each labourer produces only some part of a whole, and each part, having no value or utility in itself, there is nothing on which the labourer can seize and say: 'It is my product, this I will keep to myself.'" *Labour defended against the Claims of Capital*, London, 1843, p. 15.—The author of this admirable work is the previously quoted Thomas Hodgskin.

³ This difference between the social division of labour and the manufacturing division of labour has been practically illustrated by the Yankees. During the Civil War, one of the new taxes devised at Washington was the duty of 5 % upon "all industrial products". Naturally the question arose: "What is an industrial product?" The legislator's answer was: "A thing is produced when it is made, and it is made when it is ready for sale." Now, one example out of many. Manufacturers in New York and Philadelphia had formerly turned out umbrellas which were "made" with all their appurtenances. But, since the umbrella is a composite of extremely heterogeneous constituents, these constituents became, by degrees, finished articles, independently produced by independent industries in different places. The partial products of the industries were sent as independent commodities to the umbrella manufactory, where they were assembled to form a whole. The Yankees have called articles thus fitted together "assembled articles", a notable game for they are assemblages of taxes. Thus the umbrella assembles, first of all, a 5 % tax upon the price of each one of its constituent parts, and subsequently 5 % upon the price taken as a whole.

that is to say must satisfy a particular social want (the extent of these wants differing quantitatively, but the various wants being interconnected by an invisible tie to form a natural system); whereas, on the other hand, the law of the value of commodities determines how much of the totality of available labour time can be devoted to the production of any particular kind of commodity. But this persistent tendency of the different spheres of production to establish an equilibrium among themselves, only enters into operation as a reaction against the persistent disturbance of that equilibrium. The rule which, as far as the division of labour within the workshop is concerned, operates *a priori* and purposively, operates, in the case of the division of labour in society, only in an *aposteriori* manner as a natural necessity (immanent, dumb, disclosed in the rise and fall of the barometer of market prices) overriding the unregulated and capricious activities of the producers of commodities. The manufacturing division of labour implies the unrestricted authority of the capitalist, over persons who have become mere parts of an integral mechanism that belongs to him. The social division of labour confronts, one with another, independent producers of commodities who recognise no other authority than that of competition, the coercion exercised upon them by the pressure of their reciprocal interests—just as in the animal kingdom the war of all against all maintains, more or less, the conditions of existence of all species. The very same bourgeois mentality which extols the manufacturing division of labour, the life-long annexation of the worker to a partial operation, and the unconditional subordination of the detail worker to capital, extols them as an organisation of labour which increases productivity—denounces just as loudly every kind of deliberate social control and regulation of the social process of production, denounces it as an invasion of the inviolable property rights, liberty, and self-determining genius of the individual capitalist. It is characteristic that the inspired apologists of the factory system can find nothing worse to say of any proposal for the general organisation of social labour, than that it would transform the whole of society into a factory.

Whereas, in a society where the capitalist method of production prevails, the anarchy of the social division of labour and the despotism of the manufacturing division

of labour mutually determine one another, earlier forms of society, in which the separation of industries has spontaneously developed, then crystallised, and ultimately been consolidated by the sanction of law, offer, on the one hand, the picture of a purposive and authoritative organisation of social labour, and, on the other hand, that of a system in which the division of labour within the workshop is either non-existent, or occurs to a minimal extent, or is found only here and there as a chance development.¹

The small and extremely ancient Indian communities, which still exist to some extent, are based upon the communal ownership of the land, upon a direct linking up of agriculture and handicraft and upon a fixed form of the division of labour which is adopted as a cut-and-dried scheme whenever new communities are founded. They constitute self-sufficient productive entities, the area of land upon which production is carried on ranging from a hundred to several thousand acres. The greater part of the products is produced for the satisfaction of the immediate needs of the community, not as commodities; and production itself is therefore independent of the division of labour which the exchange of commodities has brought about in Indian society as a whole. Only the superfluity of products undergoes transformation into commodities, this being in part a primary result of the activities of the State, to which since immemorial days a definite proportion of the produce has gone in the form of rent in kind. In different regions of India, we find different forms of such communities. In the simplest form, the land is communally tilled and its produce is divided among the members of the community, while every family carries on spinning, weaving, etc., as an accessory domestic occupation. Side by side with the masses who are thus employed one and all in the same avocations, we have the following persons: the headman, who is judge, policeman, and tax gatherer rolled into one; the book-

¹ "We may say . . . as a general rule that the less we find authority dominant in the division of labour in the interior of society, the more do we find that the division of labour develops in the workshop, and the more is it subjected to the authority of a single individual. Thus, authority in the workshop and authority in society, as far as the division of labour is concerned, are in inverse ratio one to the other." Karl Marx, *Miner de la philosophie*, pp. 132-133.

keeper, who keeps the farming accounts and registers everything relating thereto; a third official whose business it is to prosecute criminals, to protect travellers from afar, and to escort them to the next village; the ranger, who keeps the bounds between his own community and neighbouring ones; the overseer of the waters, who distributes to the tillers the water that has been stored in the communal reservoirs; the Brahmin, who conducts the religious services; the schoolmaster, who, on the sand, teaches the children to read and write; the calender-Brahmin, who functions as astrologer, determining the times appropriate for sowing and harvesting, and making known which are lucky and unlucky days for various agricultural operations; a smith and a carpenter, who make and repair agricultural implements; a potter, who fashions all the earthenware utensils needed by the village community; a barber; a laundryman; a silversmith; occasionally a post, who in some communities replaces the silversmith, in others the schoolmaster. This dozen or so of persons is maintained at the cost of the community at large. If the population increases, a new community is established upon virgin soil, after the model of the old one. The mechanism of the community is one characterised by the purposive division of labour: but a manufacturing division of labour is impossible, seeing that the market for the work of the smith, the carpenter, etc., remains fixed; and seeing that at most, if the village be a very large one, there may be two or even three smiths, potters, etc., instead of one.* The law that regulates the division of the labour of the community, operates here with the inviolable authority of a law of nature. Each of the handicraftsmen, such as the smith, etc., works in accordance with traditional custom, but independently, and without being subject to any sort of authority, performing in his own workplace, on his own initiative, all the manipulations proper to his speciality. The simplicity of the productive organism in these self-sufficient communities—which continually reproduce their kind, and, if destroyed by chance, reconstruct themselves in the same

* Lieutenant Colonel Mark Wills, *Historical Sketches of the South of India*, London, 1810-1817, vol. I, pp. 118-120.—A good description of the various forms of the Indian communities is to be found in George Campbell's *Modern India*, London, 1832.

locality and under the same name¹—this simplicity unlocks for us the mystery of the unchangeableness of Asiatic society, which contrasts so strongly with the perpetual dissolutions and reconstructions of Asiatic States, and with the unceasing changes of dynasties. The structure of the economic elements of the society remains unaffected by the storms in the political weather.

The rules of the guilds, as I have already pointed out, by imposing strict limitations upon the number of apprentices and journeymen whom any one master could employ, deliberately prevented his transforming himself into a capitalist. Moreover, he could not employ journeymen in any other craft but the one of which he was himself a master. The guild kept a jealous watch upon attempts at encroachment on the part of mercantile capital, the only free form of capital with which they came in contact. The merchant could buy all commodities, but he could not buy labour as a commodity. He existed merely on sufferance as one who dealt in the products of handicraft. If external conditions demanded a progressive division of labour, the extant guilds split up into subvarieties, or founded new guilds beside the old ones; they did not attempt to carry on different handicrafts in the same workshop. Consequently, the guild type of organisation (however much it may have tended, by separating, isolating, and perfecting handicrafts, to create the material conditions requisite for the development of the manufacturing period) was incompatible with the growth of the manufacturing division of labour. Taking the system as a whole, the worker remained connected with the means of production he used, just as a snail is connected with its shell. For this reason there was lacking the primary basis of manufacture, which is that the means of production

¹ "Under this simple form, . . . the inhabitants of the country have lived from time immemorial. The boundaries of the villages have been but seldom altered; and though the villages themselves have been sometimes injured, and even desolated by war, famine, and disease, the same name, the same limits, the same interests, and even the same families, have continued for ages. The inhabitants give themselves no trouble about the breaking up and division of kingdoms; while the village remains entire, they care not to what power it is transferred or to what sovereign it devolves; its internal economy remains unchanged." Thomas Stamford Raffles, intendant-governor of Java, *The History of Java*, London, 1832, vol. I, p. 285.

should acquire an independent existence as capital, an existence confronting that of the worker.

Whereas in society at large the division of labour, whether it be or be not brought about by the exchange of commodities, is a feature of societies of the most diversified economic types—the manufacturing division of labour is a development peculiar to the capitalist method of production.

5. THE CAPITALIST CHARACTER OF MANUFACTURE.

An increased number of workers under the control of one unit of capital is the natural starting-point alike of co-operation in the most general sense and of manufacture. Conversely, the manufacturing division of labour makes an increase in the number of workers under the control of one unit of capital a technical necessity. The minimum of workers that can be employed by one capitalist is dictated by the extant form of the division of labour. On the other hand, the advantages of further division of labour are only obtainable by adding to the number of workmen, and this can be done in no other way than by adding multiples of the various detail groups. But, together with the growth of the variable component of the capital, there must occur a growth of the constant component; side by side with an increase in the general means of production, such as buildings, furnaces, etc., there must also be an increase in the supply of raw material, the demand for which grows much more rapidly than does the demand for more workers. The quantity of raw material utilised in a given period of time by a given quantity of labour, increases in the same ratio as the productivity of labour increases owing to the division of labour. Thus it is a law arising out of the technical character of manufacture that there should be a progressive increase in the minimal amount of capital in the hands of individual capitalists; in other words, there must be a continuous extension in the transformation of the social means of subsistence and means of production into capital.¹

¹ "It does not suffice that the capital" [the writer should have said, the necessary means of subsistence and means of production] "required for the subdivision of handicrafts should actually exist within the society; it is further essential that this capital should have accumulated in the hands of the entrepreneurs in sufficient quantities to enable them to conduct their operations on a large scale. . . . The more the division of labour advances, the more

In manufacture, just as in simple cooperation, the collective working organism is a form of the existence of capital. The social productive mechanism made up out of numerous individual detail workers, belongs to the capitalist. Consequently, the productive energy that results from the association of labour, manifests itself as the productive energy of capital. Manufacture proper does not merely subject the formerly independent worker to the control and discipline of capital, but, in addition, it creates a hierarchical gradation among the workers themselves. Whereas simple cooperation leaves the individual's methods of work substantially unaltered; manufacture revolutionises these methods, and cuts at the root of individual labour power. It transforms the worker into a cripple, a monster, by forcing him to develop some highly specialised dexterity at the cost of a world of productive impulses and faculties—much as in Argentina they slaughter a whole beast simply in order to get its hide or its tallow. Not merely are the various partial operations allotted to different individuals; but the individual himself is split up, is transformed into the automatic motor of some partial operation.¹ Thus is realised the foolish fable of Menenius Agrippa, which depicted a human being as nothing more than a fragment of his own body.² To begin with, the worker sells his labour power to capital because he himself lacks the material means requisite for the production of a commodity. But now his individual labour power actually renounces work unless it is sold to capital. Now, it can only function in an environment which comes into existence in the capitalist's workshop after the sale of labour power has been effected. Having been rendered incapable of following his natural bent to make something

does the constant employment of a given number of labourers necessitate a greater outlay of capital upon tools, raw materials, etc." Storch, *Cours d'économie politique*, Paris edition, vol. I, pp. 250-251.—"Concentration of the instruments of production and the division of labour are no less inseparable than, in the realm of political life, are concentration of public powers and the division of private interests." Karl Marx, *Mémoire de la philosophie*, p. 134.

¹ Dagobert Stewart terms the manufacturing workmen "living automatons . . . employed in the details of the work". *Op. cit.*, p. 318.

² In corals, each individual is in fact a stomach for the whole group. But the coral polyp supplies the group with nourishment, whereas the Roman patrician withdrew nourishment from the group.

independently, the manufacturing worker can only develop productive activity as an appendenance of the capitalist's workshop.¹ Just as it was written upon the brow of the chosen people that they were Jehovah's property, so does the division of labour brand the manufacturing worker as the property of capital.

The independent peasant or handicraftsman develops knowledge, insight, and will, even though it be only to a moderate extent. The savage exercises all the arts of war as manifestations of personal cunning. Under the manufacturing system, these faculties are now needed only by the workshop as a whole. Intelligence in production is amplified in one direction because it disappears in numerous other directions. What the detail workers lose, is concentrated in the capital that employs them.² As a result of the manufacturing division of labour, the worker is confronted by the intellectual powers of the material process of production whose property, whose slave, he has become. This process begins in simple cooperation, in which the capitalist, as against the individual workers, represents the unity and the will of the associated working organism. It goes further still in manufacture, which cripples the workers by making them into detail workers. It is completed in large-scale industry, which detaches science from labour, making of science an independent force of production, and pressing it into the service of capital.³

In manufacture, the enrichment of the collective worker, and therefore of capital, in the matter of social productivity, is dependent upon the impoverishment of the workers in

¹ "The worker who is competent to carry on a complete craft can practise it anywhere and find means of subsistence; the manufacturing worker is no more than an accessory; separated from his fellows he has neither capacity nor independence, and he is therefore forced to accept whatever rules people think fit to impose on him." Storch, *op. cit.*, St. Petersburg edition, 1825, vol. I, p. 102.

² "The former may have gained what the other has lost." A. Ferguson, *op. cit.*, p. 281.

³ "The man of knowledge and the productive labourer can be widely divided from each other, and knowledge, instead of remaining the handmaid of labour in the hand of the labourer to increase his productive power, . . . has almost everywhere arrayed itself against labour, . . . systematically degrading and leading them [the labourers] astray in order to render their muscular powers entirely mechanical and obedient." W. Thompson, *An Inquiry into the Principles of the Distribution of Wealth*, London, 1824, p. 172.

the matter of their individual powers of production." Ignorance is the mother of industry as well as of superstition. Reflection and fancy are subject to err; but a habit of moving the hand or the foot is independent of either. Manufactures, accordingly, prosper most where the mind is least consulted, and where the workshop may . . . be considered as an engine, the parts of which are men."¹ As a matter of fact, in the middle of the eighteenth century there were some manufacturers who preferred to employ semi-imbeciles to carry on certain operations of a simple character which were trade secrets.²

"The understandings of the greater part of men," writes Adam Smith, "are necessarily formed by their ordinary employments. The man whose whole life is spent in performing a few simple operations . . . has no occasion to exert his understanding. . . . He generally becomes as stupid and ignorant as it is possible for a human creature to become." After describing the stupidity of the detail worker, the writer goes on as follows: "The uniformity of his stationary life naturally corrupts the courage of his mind. . . . It corrupts even the activity of his body, and renders him incapable of exerting his strength with vigour and perseverance in any other employments than that to which he has been bred. His dexterity at his own particular trade seems in this manner to be acquired at the expense of his intellectual, social, and martial virtues; but in every improved and civilised society, this is the state into which the labouring poor, that is, the great body of the people, must necessarily fall."³ In the hope of preventing the

¹ A. Ferguson, *op. cit.*, p. 180.

² J. D. Tackett, *A History of the Past and Present State of the Labouring Population*, London, 1845, vol. I, p. 142.

³ *Wealth of Nations*, bk. V, ch. I, part 3, art 2.—Since he was a pupil of A. Ferguson, who had laid much stress upon the disadvantages of the division of labour, Adam Smith was perfectly clear upon this point. In the opening part of his work, where it is a point of honour with him to praise the division of labour, he refers only in passing to the way in which it gives rise to social inequalities. He does not reproduce the views of Ferguson until he comes to the fifth book, the one on the revenues of the State. In my *Misère de la Philosophie*, I have said all that is necessary as to the historical connexion between Ferguson, Adam Smith, Leontey, and Say. In that matter of the criticism of the division of labour. In that work, I first showed how the manufacturing division of labour is a specific form of the capitalist method of production. *Op. cit.*, p. 129 et seq.

disastrous effects of the division of labour upon the great masses of the people, Adam Smith recommends State education, though it is to be carefully administered in homoeopathic doses. G. Garnier, who translated Adam Smith into French, and commented on his work, criticises the British economist's views in this respect, taking up a line quite consistent with the way in which, under the first French empire, Garnier blossomed into a senator. He says that State education of the masses violates the first laws of the division of labour, and that its introduction would involve "a proscription of our whole system of society". He writes: "Like all other divisions of labour, that between hand labour and head labour,¹ is more pronounced and decided in proportion as society² becomes richer. This division of labour, like every other, is an effect of past, and a cause of future progress. . . . Ought the government, then, to work in opposition to this division of labour, and to hinder its natural course? Ought it to expend a part of the public money in the attempt to confound and blend together two classes of labour, which are striving after division and separation?"³

Even the division of labour in society at large entails some crippling both of mind and body. Since, however, the manufacturing period carries this social division of the branches of labour much further, and in addition, thanks to its peculiar method of the division of labour, cuts at the very roots of the individual's life, it is in this period that industrial pathology (to which manufacture gives the impetus) becomes conspicuous.⁴

¹ Ferguson had already said (*op. cit.*, p. 281): "and thinking itself, in this age of separations, may become a peculiar craft".

² Adam Smith rightly uses this word "society" to denote capital, landed property, and their State.

³ G. Garnier's translation of Adam Smith, vol. V, pp. 4-5.

⁴ Ramazzini, professor of the practice of medicine at Padua, published in 1713 a work entitled *De morbis artificum* [Diseases of Workers]. In 1781, a French translation appeared, and this was reprinted in 1841 in the *Encyclopédie des sciences médicales*. During the period of large-scale industry, the catalogue of occupational diseases has, of course, been greatly extended. See, for instance, Dr. A. L. Fontanel, *Hygiène physique et morale de l'ouvrier dans les grandes villes en général et dans la ville de Lyon en particulier*, Paris, 1838; also *Die Krankheiten, welche verschiedenen Ständen, Alters und Geschlechtern eigenthümlich sind*, 6 vols., Ulm, 1860. In the year 1834, the Society of Arts appointed a Commission of Inquiry into

"To subdivide a man is to execute him, if he deserves the sentence; to assassinate him, if he does not. . . . The subdivision of labour is the assassination of a people."¹

Cooperation based upon the division of labour, or, in other words, manufacture, is, to begin with, a spontaneous growth. As soon as it has attained a certain consistency and extension, it becomes a conscious, purposive, and systematic form of the capitalist method of production. The history of manufacture proper shows that the division of labour peculiar to this system acquires its appropriate form empirically, as it were, behind the backs of the persons engaged; and that then, having once acquired this form, it endeavours (like the craft guilds) to retain it by the force of tradition, and does sometimes thus retain it for centuries. Should a change of form occur, this—minor matters apart—is always due to a revolutionary change in the instruments of labour. Modern manufacture (I am not speaking here of large-scale industry based on machine production) in some cases finds (as did clothing manufacture, for instance) in the large towns, the scattered limbs of the organism with which it will work. There they are, ready made; and manufacture has merely to assemble them. In other cases, it can easily apply the principle of division, by simply assigning the various operations of such a handicraft as book-binding exclusively to particular individuals. In such cases, less than a week will suffice to show what are the suitable numerical proportions among the hands requisite for the various functions.²

Industrial Pathology. The list of the documents collected by this commission can be found in the catalogue of the Titchmarsh Economic Museum. Very important are the official *Reports on Public Health*. See also Edward Reich, M.D., *Ueber die Entstehung der Maschen*, Erlangen, 1868.

¹ D. Urquhart, *Familiar Words*, London, 1822, p. 119.—Hegel held extremely heretical views concerning the division of labour. In his *Encyclopædia*, he writes: "When we speak of educated men, we mean, primarily, those who can do everything that others do."

² A cheerful belief in the incentive genius which must have been applied by the individual capitalist in establishing the division of labour *a priori*, now exists only among German professors, such as Herr Roscher, who, having assumed that the division of labour springs ready made out of the capitalist's head as Minerva sprung out of Jupiter's, goes on to allot this capitalist, in reward, "various wages". The more extensive or less extensive application of the division of labour depends upon the depth of the capitalist's purse, and not upon the magnitude of his genius.

By the analysis of handicraft activities, by the specialisation of the instruments of labour, by the creation of detail workers, by their grouping and combination into an integral mechanism, the manufacturing division of labour effectuates a qualitative subdivision and a quantitative proportionality in the social process of production, this implying a definite organisation of social labour; and therewith, at the same time, it develops a new, social productivity of labour. As the specific capitalist form of the social process of production (and on the preexisting basis it can only arise in the capitalist form), it is nothing more than a special method of generating relative surplus value, or a way of augmenting the self-expansion of capital (which usually passes by the name of "social wealth", "Wealth of Nations", etc.) at the cost of the workers. Not only does it develop the social productivity of labour for the capitalist instead of for the worker; but it does so through the mutilation of the individual worker. It forges new conditions for the dominion of capital over labour. Whilst, therefore, from one point of view it may be regarded as a historical advance and as a necessary developmental factor in the economic evolution of society, from another point of view it must be looked upon as an instrument of civilised and refined exploitation.

Political economy, which first appears as an independent discipline in the manufacturing period, regards the social division of labour exclusively from the outlook of the manufacturing division of labour¹ as a means for the production of more commodities with the same quantity of labour, and consequently as a means for cheapening commodities and accelerating the accumulation of capital. In sharp contrast with this stressing of quantity and exchange-value, the writers of classical antiquity were solely concerned with quality and use-value.² They declared that,

¹ The earlier economists, like Petty, and the anonymous author of *The Advantages of the East Indian Trade*, bring out the capitalist character of the manufacturing division of labour more conspicuously than Adam Smith does.

² Exceptions among the moderns are certain eighteenth-century writers who, in respect of the division of labour, take the same view as the ancients. I will mention two of these, Beccaria and James Harris.—In his *Elements of ancient politics*, Castiglioni edition, modern section, vol. XI, p. 28, Cesare Beccaria writes: "It is a matter of daily experience that one who applies his hand and his intelligence perpetually to the same kind of work and of produce,

through the separation of the branches of social production, commodities were better made, and the various impulses and talents of human beings secured suitable fields of activity¹; and they said that without some concentration of aim, nothing important could ever be achieved.² Thus, they contend, both product and producer are improved by the division of labour. If casual mention be sometimes made of the growth in the quantity of products, this only occurs with reference to the greater abundance of use-values. There is never any mention of exchange-value, any thought of the cheapening of commodities. The stressing of use-value is equally marked in Plato,³ who treats the division of labour

will get easier, better, and more abundant results than one who does nothing but make the manifold things that supply his own needs; thus dividing men into various classes and conditions for public and private benefit."—James Harris, afterwards Earl of Malmesbury, huncor for the *Diaries* of his embassy at St. Petersburg, says in a note to his *Dialogues concerning Happiness* (London, 1741, reprinted in three treatises, etc., third edition, London, 1774): "The whole argument to prove society natural (by the division of employments) is taken from the second book of Plato's *Republic*."

¹ Compare Homer's *Odyssey*, XIV, 221: "Different men take delight in different works."—Archilochus said the same thing. (See *Sartor Resartus*.)

² The modern proverb "Jack of all trades is master of none", had its classical Greek counterpart.—The Athenian regarded himself as a better producer of commodities than the Spartan, for the latter in time of war had men at his disposal, but could not command money. Thucydides makes Pericles say as much in the speech inciting the Athenians to the Peloponnesian war: "Men . . . who till their own lands are more ready to risk their lives in war than their property" (Thucydides, book I, chapter 141). Nevertheless, even as regards material production, "self-sufficiency" remained the ideal of the Athenians, as contrasted with the division of labour. In this connection, we must bear in mind that as late as the time of the fall of the Thirty Tyrants, there were not as many as five thousand Athenian citizens without landed property.

³ According to Plato, the division of labour within the community arises out of the multiplicity of wants as contrasted with the simplicity of individual attributes. His main point is that the worker must adapt himself to the work, and that it is undesirable that the work should be adapted to the worker, as becomes unavoidable when the worker practices several crafts at once, or has one or more subordinate crafts as well as his main craft. "For business is not disposed to wait until the door of the business is at leisure; but the door must follow up what he is doing, and make business his first object.—He must.—And if so, we must take that all things are produced more plentifully and easily and of a better quality when

as the foundation of the social division of classes, and in Xenophon,¹ who, with the bourgeois instinct characteristic of the man, tells us more about division of labour within the workshop. Plato's *Republic*, in so far as it discusses the division of labour as the formative principle of the State, is nothing but an Athenian idealization of the Egyptian caste system. We may remember that Egypt was regarded as the model industrial land by some other Greeks of Plato's time,

one man does one thing which is natural to him and does it at the right time, and leaves other things." (*Republic*, II. 370; Jowett's translation, *Dialogues*, 1892, vol. III, p. 50).—Thucydides writes (*op. cit.*, c. 142): "Seafaring, like any other skilled craft, is an art, and cannot . . . be carried on as a subsidiary occupation. Nor can any other occupation be carried on as subsidiary to seafaring." Plato remarks that if the work has to wait for the worker, it will often happen that the favourable moment for production will be lost, and the article will be spoiled. This same Platonic notion is met with in the protest of the English bleachers against the clauses in the Factory Acts which prescribe a definite dinner hour for all the workers simultaneously. Their business, they say, cannot be held up to suit the workers' convenience, for, "in the various operations of singeing, washing, bleaching, mangling, calendering, and dyeing, none of them can be stopped at a given moment without risk of damage. . . . To endorse the dinner hour for all the work-people might occasionally subject valuable goods to the risk of danger by incomplete operations." Where will Platonism turn up next?

¹ Xenophon tells us, not only that it is an honour to receive dainties from the Persian king's table, but also that such dainties are far more tasty than any others. "Nor is this wonderful, for just as all other arts are perfected in large cities, so do we find that the foods brought to the royal table are prepared after a more excellent fashion. For in little towns, the same workman makes chairs and doors and ploughs and tables. Besides this it is likely enough that he will build houses, and will be well content if he finds employment enough to support him. It is, of course, impossible that a jack of so many trades can be master of them all. But in great cities, where many demands are made upon every trade, one handicraft will suffice a man for the earning of his livelihood. Indeed, even the handicrafts will often be split up, one man making shoes for men and another shoes for women. Here and there, even, one will live by simply stitching shoes, another by cutting out shoes, another by sewing the uppers together while another performs none of these operations, but only assembles the parts. It will inevitably happen that one who does such highly specialised work, will do it much better. The same considerations apply to the art of cooking." *Cyropædia*, VIII. II. 3.—Xenophon is here solely concerned with telling us about the way in which the best use-values can be produced, but he knows well enough that the gradations of the division of labour depend upon the size of the market.

such as Isocrates.¹ The Greeks in the days of the Roman Empire, held the same view.²

In the manufacturing period proper, this meaning the period when manufacture is the dominant form of the capitalist method of production, this system encounters many obstacles to the full development of its peculiar tendencies. Although, as we have seen, manufacture leads, not only to a hierarchical classification of the workers, but also to a simple cleavage between skilled workers and unskilled, the number of unskilled workers remains very small owing to the preponderating influence of the skilled workers. Though manufacture adapts its detail operations to the varying degrees of maturity, strength, and skill of its living tools, and therefore tends to encourage the productive exploitation of women and children, this tendency is, on the whole, checked by the customs and by the active resistance of the male workers. Although the splitting-up of craftsmanship lowers the cost of training the worker, and therefore reduces his value, a long period of training is still requisite in the case of difficult detail work, and the workers jealously insist upon the maintenance of this period of apprenticeship even when it is superfluous. Thus we find that in England the laws of apprenticeship, which prescribed a seven-year term of apprenticeship, remained in force down to the end of the manufacturing period, and were not abrogated until large-scale industry held sway. Inasmuch as handicraft skill formed the basis of manufacture, and inasmuch as the integral mechanism which was at work in manufacture had no objective skeleton existing apart from the workers themselves, capital had continually to wrestle with the insubordination of the workers. "By the infirmity of human nature," writes our friend Ure, "it happens that the more skilful the workman, the more self-willed and

¹ "Hæciva dividit them up into special castes, . . . commanding that the same individuals should always pursue the same occupations, for he knew that those who continually change their occupations become master of none, whereas those who work always at the same occupation attain perfection in it. In truth we shall also find that in relation to the arts and handicrafts they have outstripped their rivals more than a master does a bungler; and the contrivances for maintaining the monarchy and the other institutions of their State are so excellent that the most celebrated philosophers who discuss this subject praise the constitution of the Egyptian State above all others." Isocrates, *Isæria*, cap. 8.

² Cf. Diodorus Siculus.

intractable he is apt to become, and of course the less fit a component of a mechanical system in which . . . he may do great damage to the whole."¹ That is why, throughout the manufacturing period, complaints as to the workers' lack of discipline are rife.² Even if we lacked the testimony of contemporary authors, the simple facts that, during the period between the sixteenth century and the rise of large-scale industry, capital failed to become master of the whole available labour time of the manufacturing workers, and that manufactures were short-lived and changed their locality from one country to another as the workers moved from land to land, would speak volumes. "Order must in one way or another be established," exclaims in 1770 the oft-quoted author of the *Essay on Trade and Commerce*. The demand for "order" was reiterated sixty-six years later by Dr. Andrew Ure. "Order" was wanting in manufacture based on "the scholastic dogma of division of labour"; and "Arkwright created order".

Manufacture could neither get its grip upon the whole extent of social production, nor yet revolutionise that production to the full. It towered as a work of economic art upon the broad foundation of urban handicrafts and rural home industry. The narrowness of its own technical basis brought it into conflict, when it had reached a certain degree of development, with the productive requirements which it had itself created.

One of its most finished creations was the workshop for the production of the instruments of labour themselves, especially such complicated mechanical apparatus as were then in use. A machine factory, writes Ure, "displayed the division of labour in manifold gradations—the file, the drill, the lathe, having each its different workmen in the order of skill".³ The workshop, a product of the manufacturing division of labour, served in its turn to produce machines. It was the machines which made an end of handiwork as the regulative principle of social production. Therewith, the technical reasons for the lifelong annexation of the worker to a partial function ceased to exist. Therewith, likewise, disappeared the limitations which the same principle still imposed upon the dominion of capital.

¹ Ure, *op. cit.*, p. 20.

² The remark in the text applies far more to England than to France, and more to France than to Holland.

³ Ure, *op. cit.*, p. 21.

MACHINERY AND LARGE-SCALE INDUSTRY

I. DEVELOPMENT OF MACHINERY.

IN his *Principles of Political Economy*, John Stuart Mill writes: "It is questionable, if all the mechanical inventions yet made have lightened the day's toil of any human being."¹

After all, that is not the aim of the capitalist use of machinery. Like every other advance in the productivity of labour, machinery is to cheapen commodities, and to diminish the part of the working day in which the worker works for himself while increasing the part of the working day which he gives to the capitalist for nothing. Machinery is a means for producing surplus value.

In manufacture, the revolution in the method of production begins with labour power; in large-scale industry, that revolution begins with the instruments of labour. Our first business, then, is to enquire by what means the instruments of labour are transformed from tools into machinery, to find out what differentiates a machine from a hand tool. We are concerned here with nothing more than broad general characteristics, for no hard and fast abstract lines can be drawn between the epochs of social history any more than between the epochs of geological history.

Mathematicians and mechanicians describe a tool as a simple machine, and a machine as a complex tool. Some British economists do the same thing. These authorities do not see any important difference between a tool and a machine; and they even give the name of machine to such simple instruments for multiplying mechanical power as the lever, the inclined plane, the screw, the wedge, etc.² In actual fact, every machine is constructed out of these

¹ Mill should have said "of any human being not fed by other people's labour"; for, beyond question, machinery has greatly increased the number of well-to-do idlers.

² Cf., for instance, Hutton's *Course of Mathematics*.

simple implements, however much they may be disguised and combined; but, from the economic outlook, such a description is invalid, for the historical factor is left out of account. Another way in which the distinction between the tool and the machine has been drawn is by saying that in the tool the motive power is human, whereas in the machine the motive power is some other natural force, such as an animal, water, wind, etc.¹ In that case, a plough drawn by a team of oxen, such as has been used in the most widely separated epochs of production, would be termed a machine; whereas Clausen's circular frame, which, manipulated by the hand of one worker, completes 95,000 meshes per minute, would be nothing more than a tool. Nay more, one and the same loom would be a tool when driven by hand, and a machine when driven by steam-power. Seeing that the utilisation of animal power is one of the oldest discoveries of mankind, machine production actually existed prior to handicraft production. In 1735, when John Wyatt announced his invention of the spinning machine, and therewith heralded the industrial revolution of the eighteenth century, not a word did he say about an ass driving it instead of a man, and yet this part fell to the ass. In his announcement it was described as a machine "to spin without fingers".²

¹ "From this point of view, we can draw a sharp distinction between a tool and a machine. Spades, hammers, chisels, etc., combinations of levers and of screws, for all of which, no matter how complicated they may be, man is the motive force—all these come under the head of tools; but the plough, driven by animal power, mills driven by wind, and so on, belong to the realm of the machines." Wilhelm Scholz, *Die Entwicklung der Produktion*, Zurich, 1843, p. 93.—A poleworthy book in many respects.

² Before Wyatt's time, spinning machines (very imperfect ones) had already been used. This probably happened in Italy before anywhere else. A critical history of technology would show how little any of the inventions of the eighteenth century were the work of one single individual. Hitherto, no such book has been published. Darwin has aroused our interest in the history of natural technology, that is to say in the origin of the organs of plants and animals as productive instruments utilised for the life purposes of these creatures. Does not the history of the origin of the productive organs of man in society, the organs which form the material basis of every kind of social organisation, deserve equal attention? Since, as Vico says, the essence of the distinction between human history and natural history is that the former is the work of man and the latter is not, would not the history of human technology be easier to write than

All fully developed machinery consists of three essentially distinct parts, the motor machine, the transmitting mechanism, and the mechanised tool or working machine. The motor machine is the driving force of the whole. It either creates its own motive power as does the steam-engine, the caloric engine, the electro-magnetic machine, etc.; or else it derives its energy from some external and pre-existent natural force, as the water-wheel does from falling water, the windmill from wind, and so on. The transmitting mechanism, consisting of flywheels, shafting, cogwheels, pulleys, straps, ropes, belts, pinions, and gearing of the most varied kinds, regulates the motion; changes its type when necessary, as from up and down to circular; distributes it; and transfers it to the mechanised tools. The motor and the transmission exist only in order to drive the actual operative mechanism, in order to communicate to it the motion by means of which the object of labour is grasped and suitably altered. The industrial revolution of the eighteenth century depended upon the third part of the machinery, the mechanised tool or working machine. From day to day, working machines of this kind continue to form the starting-point when handicraft or manufacture is replaced by machine-facture.

Close examination of the working machine proper shows that it contains, though often in a much modified form, the apparatus and instruments with which the handicraftsman and the manufacturing worker operate; but now, instead of being the implements of a man, they are the implements of a mechanism, or mechanised implements. Either the whole machine is nothing more than a modified mechanical edition of the old handicraft tool, as in the case

the history of natural technology? Technology reveals man's dealings with nature, discloses the direct productive activities of his life, thus throwing light upon social relations and the resultant mental conceptions. Even the history of religion is uncritical unless this material basis be taken into account. Of course it is much easier, from an analysis of the hazy constructions of religion, to discover their earthly core; than, conversely, to deduce from a study of the material conditions of life at any particular time, the celestial forms that these may assume. But the latter is the only materialistic method, and therefore the only scientific one. The abstract materialism of a natural science that excludes the historical process, is defective; as we can see in a moment when we glance at the abstract and ideological conceptions voiced by its advocates whenever they venture beyond the bounds of their own specialty.

of the power-loom;⁷ or else, in the structure of the working machine, in its active organs, we can recognise old acquaintances, such as the spindles in a spinning machine, the needles in a stocking frame, the saws in a sawing machine, the knives in a chopping machine, and so on. The distinction between these tools and the main body of the working machine exists from their very birth. They are still, for the most part, produced by handicraftsmen or by manufacturing workers, and subsequently attached to the body of the working machine, a body which is produced by manufacture.⁸ Thus the working machine is a mechanism which, through the instrumentality of the tools attached to it, carries out the very same operations which the manual worker of former days carried out with tools of a like kind. The essence of the matter is just the same whether the motive power is supplied by human beings or by some sort of machine. From the moment when the business of handling the tool is transferred from a human being to a mechanism, a machine has taken the place of a mere tool. The difference is obvious, even when a human being is still the prime motive force of the machine. The number of working implements which a man can operate simultaneously is limited by the number of his own natural instruments of production, his own bodily organs. In Germany, to begin with, they tried to make a spinner drive two spinning wheels, simultaneously operating with two hands and two feet. This was found to be too exhausting. Then they made a spinning wheel with two spindles, driven by one treadle, but the skilled spinners who were able to spin two threads simultaneously were almost as rare as two-headed men. The spinning jenny, however, works from twelve to eighteen spindles at one time; the stocking frame knits with many thousand needles at once; and so on. Thus from the very first the number of tools which one and the same working

⁷ In the original form of the power-loom, the old hand-loom can be recognised at a first glance. In its modern form, the power-loom has been fundamentally altered.

⁸ Only since about 1850 has a steadily increasing proportion of the tools of the working machine been produced in England by manufacture, although not by the same factories as those in which the machines themselves are made. Among machines for the fabrication of such mechanical tools, may be mentioned the automatic bobbin-making engine, the card-setting engine, shuttle-making machines, and machines for forging nails and throttle spindles.

machine can operate simultaneously, is emancipated from the organic limits that restrict the activities of a hand-craftsman's tools.

In many hand implements, the difference between a man as a simple motor force and as a worker who actually handles tools, is brought into striking contrast. For instance, in the use of the spinning wheel, the foot is used simply as a driving force, whereas the hand which works with the spindle, drawing and twisting, is carrying out the real operations of spinning. It is the latter part of the handicraft instrument which is first seized upon by the industrial revolution. The human being, while minding the machine, watching its activities, and correcting its errors, has at the same time to fulfil the purely mechanical role of supplying motive power. On the other hand the implements to which man has always supplied motive power by the simple use of his own muscles (as by turning the crank of a mill,¹ by moving the handle of a pump up and down, by blowing a bellows, by pounding with a pestle in a mortar, and the like), soon call for the application of animals, water, wind,² etc., as motive forces. Here and there, long before the manufacturing period, such implements began to develop into machines, and the process continues during the era of manufacture; but this does not bring about a revolutionary change in the mode of production. However, when the period of large-scale industry has begun, we find that, even in their hand-driven form, these implements are already machines. For instance, the pumps with which,

¹ Moses says: "Thou shalt not muzzle the ox when he treadeth out the corn." But the Christian philanthropists of Germany, when using their serfs to drive mills, fastened a large circular piece of wood round the necks of these human cattle, to prevent them from putting meal into their mouths.

² It was partly for the want of streams with a good head of water, and partly the need for devoting so much energy to keeping water out of places where it was not wanted, that compelled the Dutch to resort to wind as a motive power. They got the windmill itself from Germany, where the discovery had led to a pretty quarrel between noblemen, priest, and emperor as to which of the three the wind "belonged". "Air makes bondage," ran the word in Germany, whereas in Holland the wind brought freedom. What the wind made bond in the Netherlands was not the Netherlander, but the land. In 1876, 12,000 windmills of 6000 horse-power were still being used in Holland, to prevent two-thirds of the country from becoming waterlogged marshes once more.

during the years 1836 and 1837, the Dutch emptied the lake of Haarlem were constructed on the principle of ordinary pumps, the only difference being that their pistons were activated by cyclopean steam-engines instead of by human hands. The ordinary bellows used by the blacksmith, a very imperfect instrument, is in England, still, at times, transformed into a mechanical blast by connecting its arm with a steam-engine. The steam-engine itself, in the form of its original discovery during the manufacturing period at the close of the seventeenth century—the form in which it continued to exist down to 1780¹—did not in those days give rise to any industrial revolution. It was the creation of mechanised tools which made a revolution in the steam-engine necessary. As soon as man, instead of working with a tool upon the object of labour, is content to supply the motive power to a working machine, it becomes a mere chance matter that the motive power is derived from human muscles; for wind, water, steam, or some other mechanical power, can readily be substituted for the human motive power. Of course, should this occur, it is natural that there should ensue extensive technical changes in the mechanism which was primarily constructed to be driven by human motive power. Nowadays, machines that have their way to make, like sewing machines, bread-making machines, and so on, are (unless their primary function makes a small scale of working impossible to them) made so as to be simultaneously adaptable for being driven by human power and by mechanical power.

The machine that gives rise to the industrial revolution is one which replaces the worker handling a single tool, by a mechanism operating simultaneously a number of identical or similar tools, and driven by a single motive power, whatever the form of that power may be.² Here we have a machine, but to begin with only as an elementary factor of manufacture.

Increase in the size of the working machine and in the number of tools it simultaneously sets at work, involves

¹ It had, indeed, been very much improved by the invention of Watt's first steam-engine, the so-called single-action engine; but in this form it remained nothing more than a machine for pumping water out of coalmines and brine out of salt-pits.

² "The union of all these single instruments, set in motion by a single motor, constitutes a machine." Babbage, *op. cit.*

an increase in the internal resistances it has to overcome, and therefore demands a more powerful motive force than that of human muscle—quite apart from the consideration that the human being is not well fitted by nature to produce uniform and continuous motion. Assuming, however, that man continues to act as an elementary motive force, while the tool he formerly used by hand has been replaced by a mechanised tool, it is obvious that the forces of nature can now replace him likewise as motive power. Of all the great motive forces handed down from the manufacturing period, horse-power was the worst; partly because a horse has a head of his own, and partly because the animal is expensive, and the extent to which it is applicable in factories is a restricted one.¹ Nevertheless, horses were still extensively used as motive power during the early days of large-scale industry, as is shown by the complaints which the agriculturists of those days made about the matter, and also by the fact that the term "horse-power" has survived to this day as the traditional measure for the quantity of mechanical force.

Wind was found to be uncertain and difficult to control.

¹ In January 1881, John C. Morten read before the Society of Arts a paper upon the Forces Employed in Agriculture. In this he said: "Every improvement that furthers the uniformity of the land, makes the steam-engine more and more applicable to the production of pure mechanical force. . . . Horse-power is requisite wherever crooked horses and other obstructions prevent uniform action. These obstructions are vanishing day by day. For operations that demand more exercise of will than actual force, the only power applicable is that controlled every instant by the human mind. In other words, man-power." Mr. Morten goes on to reduce steam-power, horse-power, and man-power, to the unit in general use for steam-engines, namely the force required to raise 33,000 lbs. one foot in one minute; and he reckons that the cost of a horse-power supplied by a steam-engine works out at 3d. per hour, and by a horse at 3½d. per hour. Furthermore, if a horse is to be kept in good health, it must not work more than eight hours a day. The use of steam-power would enable a farmer to dispense with at least three out of every seven horses tied on the land, at a cost for the whole year not exceeding that of the horses disposed with during the three or four months in which alone they can be used effectively. Lastly, the quality of the work is improved when horses are replaced by steam-power for those agricultural operations in which it is suitable. To do the work of a steam-engine would need sixty-six men at a total cost of 12½ per hour, while to do the work of a horse would require thirty-two men at a total cost of 8½ per hour.

In England, the birthplace of modern large-scale industry, the use of water-power predominated over that of wind-power even during the manufacturing period. As early as the seventeenth century, attempts were made to turn two cylinders and also two sets of millstones by means of one water-wheel. But the transmitting mechanism, being now considerably enlarged, proved too much for the water-power, and this led to a more careful study of the laws of friction. In like manner the irregular working of mills that were actuated by pushing and pulling a lever, led to the theory and subsequently to the application of the flywheel,¹ which subsequently played so important a part in large-scale industry. Thus it was that during the manufacturing period there were developed the first scientific and technical elements requisite for large-scale industry. Arkwright's throstle spinning mill was from the first actuated by water-power. For all that, the use of water-power as the chief motive force was beset with difficulties. It could not be increased at will; it was liable to run short at certain seasons of the year, and, above all, it was of a purely local nature.² Not until the invention of Watt's second steam-engine, the so-called double-action engine, had a motor been discovered able to begot its own force out of the consumption of coal and water; one whose powers were fully under human control; one which could be moved from place to place, and serve as a means of locomotion; one which was urban and not, like the water-wheel, rural, so that production could be concentrated in the towns instead of being scattered over the countryside; one which was universal in its techno-

¹ Pambour, 1823; De Coss, 1833.

² The modern discovery of the turbine has freed the industrial utilization of water-power from many of its earlier restrictions.

³ "In the early days of textile manufactures, the locality of the factory depended upon the existence of a stream having a sufficient fall to turn a water-wheel; and although the establishment of the watermills was the commencement of the breaking up of the domestic system of manufacture, yet the mills (necessarily situated upon streams, and frequently at considerable distances the one from the other) formed part of a rural, rather than an urban system; and it was not until the introduction of the steam-power as a substitute for the stream, that factories were congregated in towns, and localities where the coal and water required for the production of steam were found in sufficient quantities. The steam-engine is the parent of manufacturing towns." A. Redgrave, *Reports of the Inspector of Factories*, April 30, 1866, p. 36.

logical applicability, and was, comparatively speaking, little affected by local circumstances in his choice of residence. The greatness of Watt's genius is shown in the specifications of the patent he took out in April 1784. Here he describes the steam-engine, not as a discovery made for particular purposes, but as an agent universally applicable in mechanical industry. He foreshadows applications many of which, such as the steam-hammer, were not to be made until half a century later. Nevertheless, he doubted whether the steam-engine would be applicable to navigation. His successors, Boulton and Watt, exhibited at the international exhibition of 1851 steam-engines of huge size built for ocean steamers.

As soon as tools had been transformed from tools of the human organism into tools of a mechanical apparatus, tools of the working machine, ere long the motor mechanism, too, acquired an independent form, completely emancipated from the limitations of human power. Thereupon the individual mechanised tool, such as we have been hitherto considering, was reduced to the status of a mere element in machinefacture. One motor mechanism was now able to drive a great many working machines at once. As the number of simultaneously operated working machines increases, the motor mechanism grows in size and power, and the transmitting mechanism becomes enormously extended.

We have now to distinguish between the cooperation of many machines of the same kind, on the one hand, and the machine system in general, on the other.

In the former case, the whole finished article is produced by a single working machine which carries out all the various operations that a handicraftsman used to perform with his instrument (for instance, a weaver with his handloom), or which handicraftsmen with different tools used to carry out as serial operations, either independently of one another or jointly as parts of a manufacturing process.*

* From the standpoint of the manufacturing division of labour, weaving was not a simple but a complicated form of manual labour, and for this reason the power-loom is a machine which performs manifold functions. It is altogether erroneous to suppose that modern machinery began by gaining control of those operations which the manufacturing division of labour had simplified. In the manufacturing period, spinning and weaving were split up into new varieties,

For example, in the making of envelopes by hand, one man folded the paper with the folder, another laid on the gum, a third turned over the flap upon which something was to be embossed, a fourth did the embossing, and so on; and between all these partial operations, each individual envelope must pass from hand to hand. Nowadays, one envelope machine does all these operations at once, and makes more than three thousand envelopes an hour. In the London exhibition of 1862, there was an American machine for making paper bags. It cut the paper, pasted, folded, and finished three hundred bags per minute. The whole process which, when carried on by manufacture, was divided into a series of operations combined into an integral process, is now performed by a working machine which operates a combination of different tools simultaneously. No matter whether such a working machine is nothing more than the mechanical resurrection of a complicated hand tool, or whether it is a combination of various simple instruments that have been specialised for manufacturing purposes—in either case, in the factory, that is to say in a place where work is carried on by machinery, cooperation always reappears in its simple form. Leaving the workers out of consideration for the moment, this cooperation presents itself in the first instance as an aggregation in one place of similar machines engaged in simultaneous action. For instance, a textile factory consists of a number of power-looms working side by side, and a sewing factory of a number of sewing machines at work in the same building. In either case, there is a technical unity, inasmuch as all the power-looms, or all the sewing machines, are simultaneously and equally animated by the energy of one prime motor, conveyed to them by the transmitting mechanism, which is also, to a certain extent, common to them all, inasmuch as particular ramifications of it branch off to each working machine. Just as many tools form the organs of a working machine, so, now, do many working machines form the like organs of one and the same motor mechanism.

What we are really entitled to call a "machine system" does not get to work in place of the individual independent

and the implements employed in them were improved and modified; but the labour process itself was not split up, and it remained manual. The development of the machine sets out, not from labour, but from the instrument of labour.

machines until the object of labour undergoes a connected series of different graduated processes, carried out by a succession of different working machines, each of which supplements the activities of the others. Here, once more, we have a repetition of cooperation by division of labour such as is characteristic of manufacture; but now the division is carried out by a combination of working machines each of which performs a partial operation. The specific implements of the various detail workers (in woollen manufacture, for instance, those of the beaters, the combers, the spinners, etc.) have now been transformed into the implements of specific working machines, each of which constitutes a special organ for the performance of a particular function in the system of the combined implemental mechanism. In those branches of industry in which machine-facture is first introduced, manufacture itself furnishes, in a general way, the natural basis for the division, and therefore for the organisation, of the process of production.*

Nevertheless, an essential difference manifests itself at once. In manufacture, the workers, isolated or in groups, have to carry out each partial process with their hand tools. The worker is, indeed, adapted to the process, but the process has previously been adapted to the worker.

* Before the days of large-scale industry, the manufacture of woollens was the leading branch of English manufacture. Consequently, it was in this branch that the majority of experiments were carried out during the first half of the eighteenth century. The experience thus gained was turned to account subsequently, in the manufacture of cotton goods, whose mechanical elaboration requires less tedious preparations than does that of woollen goods. Conversely, at a still later date, the manipulation of wool by machinery was developed on the lines of the machine spinning and power-loom weaving of cotton. Only during recent decades have certain elements of woollen manufacture, such as wool-combing, been incorporated into the factory system. "The application of power to the process of combing wool, . . . extensively in operation since the introduction of the 'combing machine', especially Lister's, . . . undoubtedly had the effect of throwing a very large number of men out of work. Wool was formerly combed by hand, most frequently in the cottage of the comber. It is now very generally combed in the factory, and hand labour is superseded, except in some particular kinds of work in which hand-combed wool is still preferred. Many of the handcombers found employment in the factories, but the produce of the handcombers bears so small a proportion to that of the machine, that the employment of a very large number of combers has passed away." *Reports of Inspectors of Factories*, October 31, 1836, p. 16.

This subjective principle of the division of labour no longer exists in the case of machine production. Here the whole process becomes objective, is considered in and by itself, analysed into its constituent phases; and the problem of carrying out each detail process, and of combining the various partial processes, is solved by the technical application of mechanics, chemistry, etc.² Of course, in this case likewise, theory must be perfected by the accumulation of practical experience on a large scale. Each partial machine provides the raw material for the machine that comes next in the series; and, since they all work simultaneously, the product is simultaneously in the various stages of its production, and simultaneously in the various stages of its transition from one phase of production to the next. Just as in manufacture the direct cooperation of the detail workers establishes definite numerical ratios between the particular working groups, so in an organised system of machine production, in which each detail machine is continually being supplied with work by another, there are established definite relations between their number, their scope, and the speed at which they work. The collective working machine, which is now an organised system comprising different kinds of individual working machines and groups of such machines, becomes more and more perfect, the more the process as a whole becomes a continuous one, this meaning, the less the raw material is interrupted in its passage from the first phase to the last; in other words, the more the mechanism itself is able to replace human hands in passing on from one phase of production to the next the material that is being elaborated. In manufacture, the isolation of each detail process is a condition imposed by the nature of the division of labour; but in the fully developed factory it has become imperative that the separate processes shall be carried on continuously.

A system of machinery (whether, like weaving, it be one in which there is a mere cooperation among working machines of the same kind; or, like spinning, a combination of machines of different kinds) becomes a huge automaton as soon as it is driven by a self-acting prime motor. But although the system as a whole be driven by a prime motor,

² "The principle of the factory system, then, is to substitute . . . the partition of a process into its essential constituents, for the division or gradation of labour among artisans." Ure, *op. cit.*, p. 22.

a steam-engine for instance, some of the individual working machines may still need the human worker's hand in the performance of certain operations (as was necessary for the running in of the mule carriage before the invention of the self-acting mule, and remains necessary in fine-spinning mills). Or, to enable a machine to carry out its work, certain parts of it may have to be handled by a worker as if they were hand tools (as was done in machine makers' workshops before the conversion of the slide rest into a self-actor). As soon as the working machine can perform without human aid, all the movements requisite for the elaboration of the raw material, so that nothing more than supervision is needed, we have an automatic system of machinery, but one which is capable of continual improvement in matters of detail. Thus we get the apparatus which brings a spinning machine to a halt whenever a thread breaks; and the self-acting stop that stops the improved power-loom as soon as the shuttle bobbin is emptied of weft: these are quite modern inventions. The modern paper mill offers a good example both of continuity of production and of the carrying out of the automatic principle. In paper making, we can advantageously study in detail, not only the differences between various methods of production carried out by the varying means of production, but also the connexion between social relations of production and these same means of production; for the German paper making of earlier days was a model of handicraft production, while Dutch paper making in the seventeenth century and French paper making in the eighteenth century were models of manufacturing production; and modern English paper making is a model of the automatic factory production of paper. Furthermore, in China and in India there still exist two venerable Asiatic forms of the same industry.

An organized system of working machines which are one and all set in motion by the transmitting mechanism from a central automaton, constitutes the fully developed form of manufacture. In place of the individual machine, we now have a mechanical monster whose body fills the whole factory, and whose demon power, hidden from our sight at first because of the measured and almost ceremonious character of the movement of his giant limbs, discloses itself at length in the vast and furious whirl of his numberless working organs.

There were mules, steam-engines, and the like, before there were workers whose sole business it was to make steam-engines, mules, etc.—just as men were clothing before there were tailors. But the discoveries and inventions of Vaucanson, Arkwright, Watt, and others, were only possible because these inventors found ready to hand a suitable number of skilled mechanics who were placed at their disposal thanks to the manufacturing period. Some of these workers were independent handicraftsmen practicing various trades; others, as previously explained, had been brought together in manufactures where the division of labour was strictly carried out. With the advance of mechanical invention, and the ever-growing demand for the newly discovered machines, there gradually ensued, on the one hand, a splitting-up of machine making into numerous independent branches, and, on the other hand, a division of labour within the machine-building manufacture. Thus we see in manufacture the immediate technical basis of large-scale industry. Manufacture produced the machinery with which large-scale industry was first enabled to gain control of certain branches of handicraft and manufacturing industry. Thus, in the natural course of events, machinefactory grew up upon an inadequate foundation. When it had attained a certain degree of development it had to bring about a revolutionary change in this foundation, which it had found ready to its hand, and had at first developed along the old lines; and it had to create a new basis better suited to its own method of production. Just as individual machines had been dwarf structures so long as they were set in motion only by men, just as the machine system could not develop freely until the steam-engine was able to replace the old motive powers of beasts, the winds, and water, so large-scale industry was hindered in its development as long as its characteristic means of production, the machine itself, owed its existence to individual powers and individual skill—was dependent, that is to say, upon the muscular development, the keenness of sight, and the cunning of hand, with which the detail workers in manufacture and the manual workers in handicraft manipulated their dwarf instruments. Apart, therefore, from the costliness of machines made in this way (and prime cost is a matter of supreme importance to capital), the expansion of industries carried on by machinery, and the

spread of machinery into fresh branches of production, were dependent on the growth of a category of workmen whose numbers, owing to the almost-artistic nature of their occupation, could not possibly increase by leaps and bounds. Furthermore, at a certain stage of its development, large-scale industry found itself hampered by the inadequacy of its handicraft and manufacturing basis in the technical domain as well. The primary motors became larger and more powerful, as also did the transmitting mechanism and the working machines. The constituent parts of these machines grew more complicated and more multiform, and at the same time became more regular in type, in proportion as the working machines departed more and more from the model of those originally designed for handicraft labour, and acquired a configuration which was much freer, and was determined only by the mechanical task they had to perform.* Then came the fuller development of the automatic system, with the need for the more extensive utilisation of materials that were comparatively difficult to manipulate, such as iron instead of wood. But the solution of all these problems, which spontaneously arose in the course of the development of machine production, encountered in every instance obstacles in the matter of individual limitations, which even the collective worker in manufacture could overcome only in respect of their extent but not in respect of their qualitative essence. For example, such machines as the modern hydraulic press, the modern power loom, and the modern carding engine, could not be made by the manufacturing process.

* At first the power-loom was made mainly out of wood, but the improved modern power-loom is made of iron. To begin with, the old forms of the instruments of production influenced the new forms markedly, as may be seen from an even superficial comparison of the present power-loom with the old one, of the blast apparatus of a modern blast-furnace with the first inefficient mechanical reproduction of the ordinary bellows. The influence of the old forms is shown even more clearly in the development of the locomotive. The first attempts at the invention of a locomotive were in the direction of trying to construct a machine with two feet which were to be raised from the ground alternately like a horse's feet. Only after a considerable development of the science of mechanics, and after the accumulation of practical experience, does the form of a machine come to be decided in full accordance with mechanical principles, and only then is that form emancipated from the traditional form of the tool that gave birth to the machine.

A revolution in the method of production in one sphere of industry involves a similar revolutionary change in every sphere. This applies, first of all, to the branches of industry which, though they are isolated by the social division of labour (so that each of them produces an independent commodity), nevertheless are interconnected as phases of one integral process. Thus machine spinning made machine weaving necessary; and both together necessitated a mechanical and chemical revolution in bleaching, printing, and dyeing. In like manner, on the other hand, the revolution in cotton spinning made essential the discovery of the cotton gin for the separating of the seeds from the cotton fibre, for only then could the production of cotton reach the proportions which were now indispensable.* The revolution in the method of production in industry and agriculture, likewise necessitated a revolution in the general conditions of the social process of production, that is to say in the means of communication and transport. In a society whose pivots (to use Fourier's expression) were, first, small-scale agriculture, with its subsidiary home industries, and, secondly, urban handicraft, the means of communication and transport were utterly inadequate to the requirements of the manufacturing period, with its extended division of social labour, its concentration of the means of labour and of the workers, and its colonial markets; communication and transport, therefore, had to be revolutionised, and were in fact revolutionised. In like manner, the means of transport and communication handed down from the manufacturing period into the period of large-scale industry, soon showed themselves to be an intolerable fetter upon this new type of industry, with its fabril speed of production, its vast gradations, its continual transference of capital and labour from one sphere of production to another, and its newly created ties in the world market. Thus, over and above extensive changes in the construction of sailing ships, the means of communication and transport were gradually adapted, by a system of river steamships,

* Until very recent times, Eli Whitney's cotton gin had undergone less fundamental changes than any other machine of the eighteenth century. Only during late decades, since 1850, has an improvement as simple as it is effective, the invention of another American, Mr. Emery, of Albany, New York State, made Whitney's gin out of date.

railroads, ocean steamships, and telegraphs, to the methods of production of large-scale industry. But now, vast quantities of iron had to be forged, welded, cut, bored, and shaped. For this, in turn, huge machines were requisite, machines which the manufacturing system of machine production could not possibly provide.

Large-scale industry, therefore, had to gain control of its own most characteristic means of production, the machine itself; had to produce machines by machines. Thus was it first able to provide itself with an adequate technical foundation, and to stand upon its own feet. With the growth of machine manufacture in the early decades of the nineteenth century, machinery did in fact gain control, by degrees, of the fabrication of machine tools. But it was not until recent decades that the construction of railways and the building of ocean steamers on a huge scale called into existence the gigantic machines now at work in the construction of prime movers.

The most essential condition for the fabrication of machines by machines was that there should be a machine competent to supply power to any extent, and under perfect control. This already existed in the steam-engine. But it was still necessary to gain the power of producing by machinery the perfectly accurate geometrical forms required for the separate parts of machines—straight lines, planes, circles, cylinders, cones, and spheres. This problem was solved by Henry Maudslay in the opening years of the nineteenth century by the invention of the slide rest, a tool that was speedily made automatic, and, having been first designed for the lathe, was soon applied in a modified form to other constructive machines. This mechanical appliance does not replace another tool, but the human hand itself, the hand which produces a particular form by holding, applying, and guiding the edge of cutting instruments against or over the material operated upon—iron or another. Thus it became possible to produce the geometrical forms requisite for the individual parts of machinery "with the degree of ease, accuracy, and speed, that no accumulated experience in the hand of the most skilled workman could give".¹

¹ *The Industry of Nations*, London, 1855, pt. II, p. 199.—From the same work I quote the following: "Simple and outwardly unimportant as this appendage to lathes may appear, it is not, we believe, overrating too much to state, that its influence in improving and

If we now turn to examine the part of the machine-building machinery which makes the actual mechanised tool, we get back to the handicraft instrument, but on a cyclopean scale. For example, the operating part of a boring machine is a huge drill, driven by a steam-engine, and it is an instrument without which the cylinders of large steam-engines and hydraulic presses could not be produced. The mechanical lathe is a gigantic reproduction of the ordinary foot-lathe; the planing machine is an iron carpenter who works upon iron with the same tool used by the living carpenter when he planes wood; the implement which cuts veneers in the London shipbuilding yards is a gigantic razor; the tool of the shearing machine, which cuts iron as easily as a tailor cuts cloth with his shears, is an enormous pair of scissors; and the steam-hammer works with a head just like that of an ordinary hammer, but such a heavy one that Thor himself could not wield it.* One of these steam-hammers weighs more than 6 tons, and strikes with a vertical fall of 7 feet on an anvil weighing 36 tons. It is child's play to such an instrument to crush a block of granite into powder, but the Nasmyth hammer is equally capable of delivering a succession of light taps which will drive a nail into a piece of soft wood.†

The instruments of labour, when they assume the form of machinery, acquire a kind of material existence which involves the replacement of human force by the forces of nature, and of rule-of-thumb methods by the purposeive application of natural science. In manufacture, the organisation of the social labour process is purely subjective, is a combination of detail workers; in manufacturing, large-scale industry has a purely objective productive organism, in which the worker is nothing more than an appendage to the extant material conditions of production. In simple cooperation, and even in the cooperation founded upon the division of labour, the substitution of the collective worker

extending the use of machinery has been as great as that produced by Watt's improvements of the steam-engine itself. Its introduction went at once to perfect all machinery, to cheapen it, and to stimulate invention and improvement."

* A steam-hammer used in London for forging the shafts of paddle-wheels, actually bears the name of Thor. It can forge a shaft weighing 16½ tons as easily as a smith forges a horseshoe.

† Machines made for working upon wood, and capable of being applied on a small scale, are for the most part American inventions.

for the isolated worker still seems more or less a matter of chance. But machinery, with a few exceptions to be mentioned in due course, can only be operated by means of associated labour or joint labour. In the machine system, the cooperative character of the labour process has become a technical necessity dictated by the very nature of the means of labour.

2. THE VALUE TRANSFERRED BY MACHINERY TO THE PRODUCT.

We have seen that the increased productivity of labour due to cooperation and to the division of labour does not cost capital anything. These are the natural forces of associated labour. In like manner, such natural forces as steam, water, etc., suitable for use in productive processes, cost nothing. But just as man needs lungs before he can breathe, so does he need something that is the work of human hands before he can consume the forces of nature for productive processes. A water-wheel is requisite for the utilisation of the motive power of water, and a steam-engine is needed for the utilisation of the elasticity of steam. What applies to the forces of nature applies also to science. Once it has been discovered, the law that a magnetic needle is deviated in the field of an electric current, or the law in virtue of which a piece of iron round which an electric current is circulating becomes magnetised, costs never a penny.¹ When, however, it is a question of the utilisation of these laws in telegraphy, etc., costly and elaborate apparatus is needed. As we have seen, machinery does not eliminate tools. From being a dwarf implement in the hands of the human organism, the tool is expanded and multiplied to become the implement of a man-created mechanism. Capital now sets the workers to operate with a

¹ Generally speaking, science costs the capitalist nothing, a fact that by no means blazes him from exploiting it. The science of others is annexed by capital, just as the labour of others is. But capitalist appropriation and personal appropriation, whether of science or of material wealth, are totally distinct things. Even Dr. Ure deplores the gross ignorance of mechanical science displayed by the factory owner who uses the machinery so dear to his heart for the purposes of exploitation; and Liebig has plenty to say about the amazing ignorance of the British chemical factory owners where chemistry is concerned.

machine which guides its own tools, instead of setting him to work with hand tools. If, therefore, it is clear at the first glance that large-scale industry must vastly increase the productivity of labour by the use of the enormous powers of nature and by the enlistment of natural science for the purposes of production, it is by no means self-evident that this increased productivity will not have to be paid for by an increased expenditure of labour. Like any other constituent of constant capital, machinery does not create any value, but yields up its own value to the product it serves to beget. In so far as it has value, and therefore transfers value to the product, it forms an element in the value of that product. Instead of cheapening the product, it makes the product dearer in proportion to the value of the machine. It is plain that machines and systems of machinery, the characteristic means of labour utilised by large-scale industry, are incomparably more valuable than the means of labour used by handicraftsmen and in manufacture.

In the first place I must point out that machinery, while always entering as a whole into the labour process, enters only to a partial extent into the value-creating process. It never adds more value than it loses, on the average, by wear and tear. Thus there is a very great difference between the value of the machine and the value periodically transferred from the machine to the product. There is a very great difference between the machine as a value-forming factor and as a product-forming factor. The longer the period during which the same machinery is repeatedly used in the same labour process, the greater is this difference. We have, of course, seen that everything which can properly be called a means of labour or an instrument of production, enters as a whole into the labour process; whereas into the value-creating process it enters only piecemeal, in proportion to its daily average loss by wear and tear. But the difference between utilisation and wear and tear is much greater in the case of machinery than in the case of the hand tool, and this for several reasons. The machine, being made from more durable material, had a longer life; its use, being regulated by strictly scientific laws, permits of greater economy in the wear and tear of its constituent parts and in the expenditure of its means of consumption; and, lastly, its field of production is enormously more extended than

that of a hand tool. If we make allowance, both in the case of machinery and in the case of the hand tool, for their average daily cost, that is for the value that they transmit to the product by daily wear and tear and by the consumption of accessory materials such as oil, coal, etc., then we see that they do their work gratuitously—like the natural forces that work without the assistance of human labour. Just as the productive working domain of machinery is much greater than that of the hand tool, so, proportionally, greater is the domain of its unremunerative service as compared with that of the hand tool. Not until large-scale industry becomes established, do men succeed in making the products of their past labour, their embodied labour, work gratuitously on a vast scale like the forces of nature.¹

When we were considering cooperation and manufacture, we saw that certain general factors of production, such as buildings, etc., are, in comparison with the scattered factors of production in the hands of isolated workmen, economised thanks to joint consumption, so that they add less cost to the product than they would if consumption remained scattered. In the system of machine production, not only is the main body of a labour machine used jointly by its numerous tools, but the same motor mechanism and part of the transmitting mechanism are consumed jointly by the numerous working machines.

Given the difference between the value of the machinery, and the amount of value transmitted by it to its daily product, the degree to which the portion of value thus transmitted makes the product dearer, is determined in the first instance by the comprehensiveness of the product, by its superficies so to say. In a lecture published in 1858,

¹ Ricardo lays so much stress on this effect of machinery (of which, on other occasions, he takes no more notice than he does of the general distinction between the labour process and the value-creating process), that he is apt to lose sight of the value transferred from the machine to the product, and actually puts machines on the same footing with the forces of nature. Thus he writes: "Adam Smith nowhere undervalues the services which the natural agents and machinery perform for us, but he very justly distinguishes the nature of the value which they add to commodities. . . . As they perform their work gratuitously, the assistance which they afford us, adds nothing to value in exchange." Ricardo, *op. cit.*, pp. 336-337. —This observation of Ricardo's is of course correct in so far as it is directed against J. B. Say, who fancies that machines render the "service" of creating value which forms a part of "profits".

Mr. Baynes of Blackburn estimates that "each real mechanical horse-power^a will drive 450 self-acting mule spindles, with preparation, or 200 throstle spindles, or 15 looms for 40 inch cloth with the appliances for warping, sizing, etc." In the first case, it is the day's produce of 450 mule spindles, in the second of 200 throstle spindles, in the third of 15 power-looms, over which the daily cost of one horse-power, and the wear and tear of the machinery set in motion by that power, are spread; with the result that only a very minute portion of value is transferred by such wear and tear to a pound of yarn or a yard of cloth. Similarly in the case of the foregoing example of the steam-hammer. Inasmuch as its daily wear and tear, consumption of coal, etc., are distributed among the enormous masses of iron which it hammers every day, to each 1 cwt. of iron only a very small portion of value is transferred; but the value transferred would, comparatively speaking, be very great, if the huge instrument were used to drive tinnacks.

The working machine's sphere of action, that is to say the number of its working tools, being given, or, when we

^a A horse-power is equal to a force of 33,000 foot-pounds per minute, i.e. to the force which will raise 33,000 lbs. through one English foot in a minute, or will raise 1 lb. through 33,000 ft. This is the horse-power referred to in the text. In ordinary language, and also here and there in quotations in the present work, a distinction is drawn between the "nominal" and the "commercial" or "indicated" horse-power of the same engine. The old or nominal horse-power is calculated exclusively from the length of the piston stroke and the diameter of the cylinder, leaving steam pressure and piston speed out of consideration. For practical purposes it says: "This steam-engine has (for instance) 50 horse-power when it is driven with the same low steam pressure and the same moderate piston speed as in the days of Boulton and Watt." But the two last-named factors, steam pressure and piston speed, have enormously increased since those days. In order to measure the mechanical force exerted to-day by a steam-engine, an indicator has been invented to show the steam pressure in the cylinder. The piston speed is easily ascertained, the "indicated" or "commercial" horse-power of an engine is expressed by a mathematical formula wherein the diameter of the cylinder, the length of the stroke, the piston speed, and the steam pressure, are all taken into account, so that we learn exactly what multiple of 33,000 lbs. can really be raised one foot by the engine in a minute. Hence one "nominal" horse-power may really yield as many as three, four, or even five "indicated" or "real" horse-power. This note is added to elucidate quotations made in subsequent pages.—Note added by Engels to the third edition.

are concerned with force, their mass being given, the quantity of products will depend upon the velocity with which the machine works, that is to say upon the speed with which the axle turns, or upon the number of blows which the hammer delivers in a minute. Many of these huge hammers give 70 blows a minute; and Ryder's patent forging machine, which uses small steam-hammers for the forging of spindles, strikes as many as 700 blows per minute.

The rate at which machinery transfers its value to the product being given, the amount of value so transferred depends upon the magnitude of value of the machinery itself.² The less labour it contains, the less value does it impart to the product. The less of its own value it gives up, the more productive is it, and the more, therefore, does it approximate to the forces of nature in its services. But the production of machinery by machinery lessens its value proportionally to its extension and efficacy.

A comparative analysis of the prices of commodities produced by handicraft or manufacture, on the one hand, and the prices of the same commodities produced by machine-fabrication, on the other, gives, in general, the result that in the case of the machine-made product the amount of value transmitted by means of labour increases relatively but diminishes absolutely. This signifies that its absolute magnitude diminishes, but that its magnitude in proportion to the general value of the product, for instance one pound of yarn, increases.³

* The reader who is accustomed to the capitalist's way of looking at things will naturally be surprised, here, that there is no mention of the "interest" which the machine transfers to the product, to an amount proportional to its own capitalised value. Yet it is easy enough to see that the machine, which is no more able to create new value than is any other constituent of constant capital, cannot create any value under the name of "interest". It is likewise clear that here, where we are concerned with the production of surplus value, we cannot assume a priori the existence of any part of that value under the name of "interest". The capitalist method of calculation, which seems absurd on the face of it, and seems to conflict with the laws of the creation of value, will be explained in the Third Book of this work.

* The proportion of value that is imparted by the machine, diminishes both absolutely and relatively when the machine does away with horses and other animals that are employed as mere motive power, and not as machines for changing the forms of matter. I may say in passing that Descartes, who defined animals as mere machines, was contemplating them from the outlook of the manu-

It is plain that when the production of a machine costs just as much labour as its use saves, there has been a mere displacement of labour, so that the total amount of labour requisite for the production of a commodity has not been reduced, and the productivity of labour has not been increased. But the difference between the labour which a machine costs and the labour which it saves, or the degree of its productivity, is obviously not dependent upon the difference between its own value and the value of the hand tool it has replaced. As long as the labour spent in producing a machine, and therefore the amount of value transferred by it to its product, remains smaller than the value added by the workman to the product with his tool, there is always a difference of labour saved in favour of the machine. The productivity of a machine is therefore measured by the extent to which it replaces human labour power. Mr. Baynes tells us that $3\frac{1}{2}$ workers' are required for every 450 mile

facturing period as contrasted with the outlock of the Middle Ages, when animals were regarded as man's helpers just as they were subsequently regarded by Von Haller in his *Reinforcement der Stammesgeschichte*.—Descartes, like Francis Bacon, looked forward to an alteration in the form of production, and to the effective control of nature by man, as a result of a change in the ways of thinking. This is shown by his *Discours de la methode*, where we read that thanks to the method he is introducing into philosophy: "It is possible to acquire knowledge which will be extremely useful to life, so that instead of that speculative philosophy which is taught in schools, we shall find a practical philosophy through which, knowing the forces and the actions of fire, water, air, the stars, and all the other bodies which surround us, as well as we know the various crafts of our artisans, we shall be able to utilize them in the same manner for all the purposes to which they are suited, and thus make ourselves the masters and owners of nature." In this way, he goes on, we shall "contribute to the perfectionment of human life".—In the preface to Sir Dudley North's *Discourses upon Trade*, 1691, we are told that Descartes' method applied to political economy has begun to free that science from the ancient fables and superstitious notions about money, trade, etc. Speaking generally, however, the English economists of earlier days derived their philosophy from Bacon and Hobbes; while, at a later date, Locke became pre-eminently "the philosopher" of political economy for England, France, and Italy.

¹ According to an annual report issued by the Chamber of Commerce at Essen in October 1863, in the year 1862 at Krupp's steel works, with its 161 furnaces, 32 steam-engines, 14 steam-hammers (representing in all 1236 horse-power), 49 forges, 202 mechanized tools, and about 2400 workmen, there were produced 23,000,000 lbs. of cast steel. Here there are not two workmen to each horse-power.—With regard to the 32 steam-engines in the Krupp works, note

spindles, together with the preparatory machinery, that are driven by one horse-power; each self-acting mule spindle working 10 hours produces 13 cts. of yarn (average number or thickness); consequently, $2\frac{1}{2}$ workers spin weekly 365½ lbs. of yarn. For simplicity's sake, disregarding waste, we see that 365 lbs. of cotton, during their conversion into yarn, absorb only 150 working hours, or 15 ten-hour working days; whereas with the spinning wheel, if the hand spinner produces 13 cts. of yarn in 60 hours, the same quantity would absorb 2700 working days of ten hours each, or 27,000 working hours.¹ Where the old method of block printing, or the printing of calico by hand, has been superseded by machine printing, a single machine, with the aid of one man or one boy, can print as much calico of four colours in one hour as in former days 200 men could print.² Before Eli Whitney invented the cotton gin in 1793, one day's average work was required to cleanse a pound of raw cotton from seeds. Thanks to his invention, one negress became enabled to clean 100 lbs. of cotton daily, and since then the efficiency of the gin has been greatly increased. One pound of cotton fibre, which could formerly be produced for 50 cents, could subsequently, thanks to the cotton gin, be sold at a higher profit (that is to say with the incorporation of more unpaid labour) for 20 cents. In Hindustan, for separating the fibre from the seed, they use an instrument called a *churca*, half machine and half hand tool, with which one man and one woman can clean 25 lbs. daily. A few years ago, Dr. Forbes invented an improved *churca* with which one man and one boy can clean 250 lbs. daily. If oxen, steam-power, or water-power be used to drive this instrument, the only labour needed is that of a few boys and girls as feeders. Sixteen of these machines driven by oxen do as much work daily as was formerly, on the average, done by 750 persons.³

that in the year 1860 this was about the total number of steam-engines working in the whole of Manchester.

¹ Babbage estimates that in Java, spinning alone, or almost alone, adds 11½ % to the value of the cotton. At the same date (1831), the total value added to cotton by machinery and labour in the fine-spinning industry amounted to about 33 % of the value of the raw material. *On the Economy of Machinery*, p. 212.

² Machines printing also economise dyestuffs.

³ Cf. a paper read by Dr. Watson, reporter on products to the government of India, before the Society of Arts, April 17, 1860.

As already stated, a steam-plough, at a cost of 3*d.* per hour, that is to say $\frac{1}{4}$ of a shilling, does as much work as 66 men at a cost of 1*s.* per hour. I return to this example in order to clear up a misunderstanding. The 1*s.* are far from being an expression in money of all the labour done by the 66 men in one hour. If the ratio of surplus labour to necessary labour were 100 %, these 66 workers would produce in one hour a value of 3*s.* although the labour of only 33 hours is represented by the equivalent of their wages, which are 1*s.* Suppose, then, that a machine costs as much as the year's wages of the 130 workers it displaces, £3000, let us say, then £3000 is by no means the expression in money of the labour performed by these 130 workers and added by them to the object of their labour; it expresses only that part of their year's work in which they were working for themselves, and which they received as their wages. On the other hand, the money value of the machine, £3000, expresses the whole quantity of the labour expended on its production, no matter what proportion of this amount represents wages for the workers and what proportion represents surplus value for the capitalists. Consequently, though the machine costs as much as the labour power displaced by it, the amount of labour embodied in it is always much less than the amount of the living labour it replaces.¹

If we regard machinery exclusively as a means for cheapening the product, the limit to its use is, that its own production shall cost less than the labour which is replaced by its employment. As far as capital is concerned, however, the limitation is even narrower. Since capital pays, not the labour that is applied, but the value of the labour power that is applied, the use of machinery to capital is limited by the difference between the value of the machine and the value of the labour power replaced by it. Inasmuch as the division of the working day into necessary labour and surplus labour is a different one in different countries, and in the same country differs in different periods, or, during the same period, in different branches of industry; and inasmuch as, further, the real wages of the worker sometimes fall below the value of his labour power and sometimes rise

¹ "These waste agents [machines] are always the produce of much less labour than that which they displace, even when they are of the same money value," Ricardo, *op. cit.*, p. 49.

above that value—the difference between the price of the machinery and the price of the labour power it replaces may vary to a considerable extent, although the difference between the quantity of labour requisite to produce the machine and the total quantity of labour replaced by it remain constant.¹ It is, however, only the former difference which decides the cost of production of the commodity for the capitalist himself, and influences his actions through the pressure of competition. That is why to-day machines are sometimes invented in England which can only be put into use in North America; just as, during the sixteenth and seventeenth centuries, machines were invented in Germany which were only put into use in Holland; and just as many French inventions of the eighteenth century were only utilised in England. In the older countries, machinery, when employed in some branches of industry, creates such a superfluity of labour ("redundancy of labour" is Ricardo's phrase) in other branches, that in these latter the fall of wages below the value of labour power hinders the use of machinery, and, from the standpoint of capital (whose profit comes, not from a diminution of the labour employed, but from a diminution of the labour paid for), renders that use superfluous and often impossible. In some branches of the English woollen industry the use of the labour of children has of late years been greatly diminished, and here and there almost completely uppressed. Why is this? Because the Factory Acts necessitate the use of two relays of children, one set working for six hours and the other for four hours, or each set working for five hours. But the parents refuse to sell the "half-timers" cheaper than the "full-timers". That is why the "half-timers" have been replaced by machinery.² Before the labour of women and that of children

¹ Hence in a communist society the scope for the use of machinery would be very different from what it is in bourgeois society.

² "Employers of labour would not necessarily retain two sets of children under thirteen. . . . In fact, one class of manufacturers, the spinners of woollen yarn, now rarely employ children under thirteen years of age, i.e. half-timers. They have introduced improved and new machinery of various kinds, which altogether superseded the employment of children [under thirteen years]; for instance, I will mention one process as an illustration of this diminution in the number of children, wherein, by the addition of an apparatus, called a placing machine, to existing machines, the work of six or four half-timers, according to the peculiarity of each machine,

under ten years of age was prohibited in mines, the capitalists found the employment of naked women and girls, often harnessed side by side with men, perfectly compatible with their moral code, and still more compatible with satisfactory entries in their ledgers, so that it was only after the before-mentioned prohibition had come into force that they had recourse to machinery. The Yankees have invented a stone-breaking machine. The English do not make use of it, because the "wretch" who breaks stones by hand is paid for so small a proportion of his labour that machinery would increase the cost of production for the capitalist.¹ In England, women are still used at times instead of horses for heading canal boats, inasmuch as the labour requisite to produce horses and machinery is an accurately known quantity, whereas that required to maintain women members of the surplus population is below all calculation. Nowhere else, therefore, do we find so shameless a squandering of the energy of human muscles as we find in England, the land of machines.

3. PRIMARY EFFECTS OF MACHINOFACURE UPON THE WORKER.

As has been shown, the starting-point of large-scale industry is a revolution in the instruments of labour, and the instruments of labour have been most effectively revolutionised in the organised system of machinofacure. Before we go on to consider how human material is incorporated into this objective organism, let us study the general effects of the aforesaid revolution upon the workers.

A. Appropriation of Supplementary Labour Power by Capital. Employment of Women and Children

In so far as machinery does away with the need for any considerable expenditure of muscular power, it becomes a task that can be performed by one young person (over thirteen years). . . . The half-time system stimulated the invention of the *pleading machine*." *Reports of Inspectors of Factories*, October 31, 1863.

¹ "Wretch" is the recognised term in English political economy for the agricultural worker.

² "Machinery . . . can frequently not be employed until labour [the means, wages] rises." Ricardo, *op. cit.*, p. 379.

³ Cf. *Report of the Social Science Congress at Effingham*, October 1863.

means for the utilisation of workers with comparatively little strength, and those whose bodily growth is immature but whose limbs are all the more supple. The labour of women and children was, therefore, the first word in the capitalist utilisation of machinery! This mighty substitute for work and workers speedily transformed itself into a means for increasing the number of wage workers by enlisting all the members of the working-class family, without distinction of sex or age, to bring them under the direct sway of capital. Forced labour for the capitalist usurped the place, not only of the children's play, but also of free labour in the domestic circle, carried on for the family itself, and within moderate limits.¹

The value of labour power was determined, not by the labour time necessary for the maintenance of the individual adult worker, but by that necessary for the maintenance of the working-class family. Machinery, by throwing all the members of the working-class family into the labour market, spreads the value of the man's labour power over his whole family, and thus depreciates his labour power. To buy the labour power of a family of four workers may perhaps cost more than it formerly cost to buy the labour power of the head of the family; but the purchaser buys four working days in place of one, and the price falls in proportion to the excess of the surplus labour of four over the surplus labour of one. In order that the family may live, four persons must now, not merely work, but supply surplus labour for capital. Thus we see that machinery, while increasing from the first the human material that

¹ During the cotton crisis brought about by the American Civil War, Dr. Edward Smith was sent by the British government to Lancashire, Cheshire, and elsewhere, to report on the sanitary condition of the cotton operatives. He reported that, from a hygienic point of view, quite apart from the removal of the workers from the factory atmosphere, the crisis had several advantages. The working women had now time to give their children the breast, instead of poisoning the unfortunate infants with Godfrey's Cordial; they had time to learn cooking. It was unfortunate that their chance of learning this art came to them at a moment when they had nothing to eat! But the report showed how capital had, in order to promote its self-expansion, annexed the labour that should have been devoted to the home and the family. Advantage was also taken of the crisis to teach sewing to the workers' daughters in special schools. An American revolution and a universal crisis were needed, that working-class girls, who spin for the whole world, might learn to sew!

forms the essential field of capitalist exploitation,² at the same time increases the rate of exploitation.

Machinery also works a complete revolution in the contract between worker and capitalist which is the formal expression of their mutual relations. Taking the exchange of commodities as the basis, the primary assumption was that the capitalist and the worker were to confront one another as free individuals, as independent owners of commodities, one of them an owner of money and the means of production, and the other an owner of labour power. But now capital buys children or young persons. In former days, the worker used to sell his own labour power, being ostensibly, in this respect, a free person. Now he sells his wife and his children. He becomes a slave trader.³

² "The numerical increase of labourers has been great through the growing substitution of female for male, and above all of childish for adult, labour. Three girls of thirteen, at wages of from 6s. to 8s. a week, have replaced the one man of mature age, of wages varying from 18s. to 45s." Thomas De Quincey, *The Logic of Political Economy*, London, 1843, note to p. 147.—Seeing that some of the functions of the family, such as caring for children and giving them rest, cannot be entirely dispensed with, a substitute of a sort must be provided for the mothers who have been confiscated by capital. The labour which is needed to supply the family consumption, such as sewing, mending, etc., must be obtained through the purchase of ready-made commodities. Consequently, the reduced expenditure of domestic labour involves an increased expenditure of money. The cost of production of the working-class family therefore increases, until it balances the greater income. Furthermore, thrift and judgment in the selection and preparation of the family food become impossible. An abundance of information relating to these matters, which official political economy hides away from sight, will be found in the Reports of the Factory Inspectors, in those of the Children's Employment Commission, and above all in the Reports on Public Health.

³ In striking contrast with the great fact that the shortening of the hours of labour of women and children in English factories was extorted from capital by the adult male workers, we find in the most recent reports of the Children's Employment Commission information of a revolting kind concerning the way in which some working-class parents conduct themselves like slave traders in this matter of the traffic in their children. Capitalist pharisees, as we can see in the aforesaid reports, are not slow to denounce the brutality which they themselves have created, perpetuated, and exploited; which they themselves have in general been glad to acclaim as "the freedom of labour". Thus we read: "Infant labour has been called into and . . . even to work for their own daily bread. Without strength to endure such disproportionate toil, without instruction to guide their future life, they have been thrown into a situation physically

Even in point of form, the demand for child labour often resembles the demand for negro slaves, as voiced in the advertisement columns of American newspapers. For instance, an English factory inspector says: "My attention was drawn to an advertisement in the local paper of one of the most important manufacturing towns of my district, of which the following is a copy: 'Wanted 12 to 20 young persons, not younger than what can pass for 13 years. Wages 4s. a week. Apply, etc.'"¹ The phrase "what can pass for 13 years" has reference to the fact that, by the Factory Act, children under thirteen years may work only six hours a day. A qualified medical man (certifying surgeon) must certify the age. That is why the factory owner wants young persons who will look as if they were more than thirteen years old. The sudden and surprising fall in the number of children under thirteen employed in factories, noted in the English statistics of the last two decades, was due, according to the factory inspectors, in great measure to the certifying surgeons, who were willing to misstate the age of the children in order to comply with the capitalists' lust for exploitation and the parents' huckstering needs. In the notorious London district of Bethnal Green, every Monday and Tuesday morning, there is held an open market, in which children of both sexes at ages from nine years upwards hire themselves out to the London silk manufacturers. "The usual terms are 2s. 8d. a week (this belongs to the parents) and '2d. for myself and tea'. The contract is binding only for a week. The scene and language while this market is going on are quite disgraceful."² It still happens in England that women take "children from the workhouse and let any one have them out for 2s. 6d. a week"³ In spite of legislation, there are still at least two thousand boys in Great Britain who have been sold by their parents to act as live chimney-sweeping machines—though

and morally polluted. The Jewish historian has remarked upon the overthrow of Jerusalem by Titus, that it was no wonder it should have been destroyed with such a signal destruction when an inhuman mother sacrificed her own offspring to satisfy the cravings of absolute hunger." *Public Economy Concentrated*, Carlisle, 1833, p. 36.

¹ A. Redgrave, in *Reports of Inspectors of Factories*, October 31, 1858, pp. 40-41.

² *Children's Employment Commission, Fifth Report*, London, 1886, p. 21, note 37.

³ *Ibid.*, *Third Report*, London, 1864, p. 33, note 13.

there is no lack of implements to replace this living labour.¹ The revolution brought about by machinery in the legal relationships between the buyer and the seller of labour power, thanks to which the whole transaction lost even the semblance of a contract between free individuals, served in the end as the pretext on which the British parliament ultimately excused State interference with the factory system. Whenever factory legislation restricts the labour of children to six hours in some industry in which this restriction has not previously been enforced, the complaints of the factory owners are loud and long. They declare that some of the parents only withdraw their children from the regulated industry in order to sell these youngsters in places where "the freedom of labour" still prevails—this meaning places where children under thirteen years of age are compelled to work like grown-ups, and can therefore fetch a better price. But since capital is by nature a leveller, this meaning that in all spheres of production it demands as an inborn right that there shall be equality in the conditions of the exploitation of labour, the legal restriction of children's labour in one branch of industry becomes the cause of a like restriction in others.

Mention has already been made of the physical deterioration of children and young persons, and also of working women, which machinery brings about; first of all directly in the factories that arise to carry on machine production, and then indirectly in every other branch of industry subjected to exploitation by capital. It will be enough now, therefore, to refer to one point—the terribly high mortality of working-class children in the first years of life. In England there are sixteen registration districts where, per 100,000 children under one year living at any time, there are only 9000 deaths per annum (in one district only 7047); in 24 districts, the mortality is over 10,000 but under 11,000; in 33 districts, it is over 11,000 but under 12,000; in 48 districts, it is over 12,000 but under 13,000; in 22 districts, it is over 13,000; in 25 districts, it is over 14,000; in 17, over 15,000; in 11, over 16,000; in Hoo, Wolverhampton, Ashton-under-Lyne, and Preston, over 17,000; in Nottingham, Stockport, and Bradford, over 18,000; in Wisbech, 26,000; and in Manchester, 26,125.² According to an official medical en-

¹ *Children's Employment Commission, Fifth Report*, p. 22, note 137.

² *Saunders Report on Public Health*, London, 1864, p. 34.

quiry in the year 1861, leaving local conditions out of account, the high mortality is mainly due to the employment of mothers away from their homes, and to the consequent neglect and mismanagement of the children; to unsuitable food, lack of food, dosing with opiates, etc.; also to an estrangement of feeling, which sometimes leads the mothers to starve and even to poison their children.¹ In those agricultural districts "where a minimum in the employment of women exists, the death rate is on the other hand very low".² The enquiry of 1861, however, led to an unexpected result; for it showed that in some of the purely agricultural districts adjoining the North Sea, the mortality among children under one year was almost equal to that of the worst factory districts. Dr. Julian Hunter was therefore commissioned to enquire into the matter locally. His report is incorporated in the *Sixth Report on Public Health*.³ It had hitherto been supposed that the children had been decimated by malaria and other diseases peculiar to low-lying and marshy districts. The investigation showed the very opposite, for it appeared that the cause which drove away malaria, namely the conversion of the land, which had been a marsh in winter and an arid pasture in summer, into fertile cornland, was really the cause of the extraordinarily high death-rate among infants.⁴ The seventy medical practitioners whom Dr. Hunter examined in these districts were unanimous upon the point. The revolution in the mode of cultivation had led to the introduction of the industrial system. Married women, who worked in gangs along with boys and girls, were hired out to the farmer by a man called "the undertaker", who contracted for the whole gang. "These gangs will sometimes travel many miles from their own village. They are to be met morning and evening on the roads, dressed in short petti-

¹ The enquiry of 1861 "showed, moreover, that, while, with the described circumstances, infants perish under the neglect and mismanagement which their mothers' occupations imply, the mothers become to a grievous extent desensitised towards their offspring—commonly not troubling themselves much at the death, and even sometimes . . . taking direct measures to secure it". *Sixth Report on Public Health*, London, 1864.

² *Ibid.*, p. 454.

³ Pp. 454-463. Reports by Dr. Henry Julian Hunter on the Excessive Mortality of Infants in some Rural Districts of England.

⁴ *Ibid.*, p. 35, and pp. 433-436.

coats with suitable coats and boots, and sometimes trousers, looking wonderfully strong and healthy, but tainted with a customary immorality and heedless of the fatal results which their love of this busy and independent life is bringing on their unfortunate offspring who are pining at home."¹ All the phenomena of the factory districts are here reproduced, with the only difference that secret infanticide is even commoner, and the practice of dosing children with opiates more widespread.² "My knowledge of such evils," writes Dr. Simon, the medical officer of the Privy Council and editor-in-chief of the *Reports on Public Health*, "may excuse the profound misgiving with which I regard any large industrial employment of adult women."³ Mr. Baker, a factory inspector, in his official report, exclaims: "Happy indeed will it be for the manufacturing districts of England, when every married woman having a family is prohibited from working in any textile works at all."⁴

The moral degradation resulting from the capitalist exploitation of the labour of women and children has been so exhaustively described by Friedrich Engels and other writers, that I need merely allude to the matter in passing. As for the intellectual desolation which is artificially produced by the transformation of immature human beings into mere machines for the fabrication of surplus value (a state of mind clearly distinguishable from the natural ignorance which keeps the mind fallow without destroying its natural fertility, its capacity for development), this ultimately compelled the British parliament to insist that, in all the industries subject to factory legislation, the giving of elementary instruction should be an indispensable

¹ P. 436, Reports by Dr. Henry Julian Hunter on the Extensive Mortality of Infants in some Rural Districts of England.

² As in the English factory districts, so in the agricultural districts of the same country, there is a steady increase in the consumption of opium among the workmen and workwomen. "To speak the sale of opiate . . . is the great sin of some enterprising wholesale merchants. By druggists it is considered the leading article." (*Ibid.*, p. 439.) Infants that were dosed with opiates "shrank up into little old men", or looked like "withered little monkeys". (*Ibid.*, p. 430.)—We see how India and China took vengeance on England.

³ *Ibid.*, p. 17.

⁴ Reports of Inspectors of Factories, October 31, 1862, p. 59.—Mr. Baker was at one time a medical practitioner.

⁵ *Lage der arbeitenden Klasse in England.*

accessory at the "productive" employment of children under fourteen. The spirit of capitalist production shines clearly in the ludicrous wording of the so-called educational clauses of the Factory Acts; it is conspicuous in the lack of any administrative machinery, in consequence of which this compulsory education is for the most part illusory; it is manifest in the opposition which the factory owners offer to these educational clauses, and in the shifty expedients to which they have recourse in their endeavours to evade the law. "For this the legislature is alone to blame, by having passed a delusive law which, where it would seem to provide that the children employed in factories shall be educated, contains no enactment by which that professed end can be secured. It provides nothing more than that the children shall on certain days of the week, and for a certain number of hours [three] in each day, be enclosed within the four walls of a place called a school, and that the employer of the child shall receive weekly a certificate to that effect signed by a person designated by the subscriber as a schoolmaster or schoolmistress."¹ Prior to the passing of the amended Factory Act of 1844, it happened, often enough, that the certificates of school attendance were signed by the schoolmaster or schoolmistress with a cross, since these instructors were themselves unable to write. "On one occasion, on visiting a place called a school, from which certificates of school attendance had issued, I was so struck with the ignorance of the master, that I said to him: 'Pray, sir, can you read?' His reply was: 'Aye, summat?' and as a justification of his right to grant certificates, he added: 'At any rate I am before my scholars.' The inspectors, when the Bill of 1844 was in preparation, did not fail to represent the disgraceful state of the places called schools, certificates from which they were obliged to admit as a compliance with the laws, but they were successful only in obtaining this mock, that since the passing of the Act of 1844, the figures in the school certificate must be filled up in the handwriting of the schoolmaster, who must also sign his Christian and surname in full."² Sir John Kinross, factory inspector for Scotland, relates similar experiences: "The first school we visited was kept by a Mrs. Ann Killin. Upon asking her to spell her name,

¹ Leonard Horner, *Reports of Inspectors of Factories*, June 30, 1857, p. 17.

² *Ibid.*, October 31, 1855, pp. 18-19.

she straightway made a mistake, by beginning with the letter C, but, correcting herself immediately, she said her name began with a K. On looking at her signature, however, in the school certificate books, I noticed that she spelt it in various ways, while her handwriting left no doubt as to her unfitness to teach. She herself also acknowledged that she could not keep the register. . . . In the second school I found the schoolroom 15 ft. long, and 10 ft. wide, and crammed in this space 75 children, who were gabbling something unintelligible."¹ Again: "But it is not only in the miserable places above referred to that the children obtained certificates of school attendance without having received instruction of any value, for in many schools where there is a competent teacher, his efforts are of little avail from the distracting crowd of children of all ages, from infants of three years old and upwards; his livelihood, miserable at the best, depending on the pence received from the greatest number of children whom it is possible to cram into the space. To this is to be added scanty school furniture, deficiency of books, and other materials for teaching, and the depressing effect upon the poor children themselves of a close, noisome atmosphere. I have been in many schools, where I have seen rows of children doing absolutely nothing; and this is certified as school attendance, and, in statistical returns, such children are set down as being educated."² In Scotland, the factory owners do their utmost to dispense with the services of children that are obliged to attend school. "It requires no further argument to prove that the educational clauses of the Factory Act being held in such disfavour among mill owners, tend in a great measure to exclude that class of children alike from the employment and the benefit of education contemplated by this Act."³ The matter assumes an aspect at once grotesque and horrible in the works where cotton prints and other prints are made. Such works are subject to a special Factory Act, and, by its terms, "every child, before being employed in a print-work, must have attended school for at least 30 days, and not less than 150 hours, during the six months immediately preceding such first day of employment, and, during the

¹ Sir John Kincaid, *Reports of Inspectors of Factories*, October 31, 1838, pp. 31-32.

² Leonard Horner, *Reports, etc.*, October 31, 1837, pp. 17-18.

³ Sir John Kincaid, *Reports, etc.*, October 31, 1838, p. 46.

continuance of its employment in the printworks, it must attend for a like period of 30 days, and 150 hours during every successive period of six months. . . . The attendance at school must be between 8 a.m. and 6 p.m. No attendance of less than 2½ hours, nor more than 5 hours, on any one day, shall be reckoned as part of the 150 hours. Under ordinary circumstances the children attend school morning and afternoon for 30 days for at least 3 hours each day, and upon the expiration of the 30 days, the statutory total of 150 hours having been attained, having, in their language, made up their book, they return to the printwork, where they continue until the six months have expired, when another instalment of school attendance becomes due, and they again seek the school until the book is again made up. . . . Many boys having attended school for the required number of hours, when they return to school after the expiration of their six months' work in the printwork, are in the same condition as when they first attended school as printwork boys, that they have lost all they gained by their previous school attendance. . . . In other printworks the children's attendance at school is made to depend altogether upon the exigencies of the work in the establishment. The requisite number of hours is made up each six months, by instalments consisting of from 3 to 5 hours at a time, spreading over, perhaps, the whole six months. . . . For instance, the attendance on one day might be from 8 to 12 a.m., on another day from 1 p.m. to 4 p.m., and the child might not appear at school again for several days, when it would attend from 3 p.m. to 6 p.m.; then it might attend for 3 or 4 days consecutively or for a week, then it would not appear in school for 3 weeks or a month, after that upon some odd days at some odd hours when the operative who employed it chose to spare it; and thus the child was, as it were, buffeted from school to work, from work to school, until the tale of 150 hours was told."¹

¹ A. Redgrave, *Reports of Inspectors of Factories*, October 31, 1897, pp. 41-42.—In those industries where the Factory Act proper (not the Printworks Act referred to in the text) has been in force for some time, the obstacles in the way of the education clauses have, of late years, been to some extent overcome. In industries not subject to the Act, the views of Mr. J. Geddes, a glassworks owner, still extensively prevail. He said to Mr. White, one of the enquiry commissioners: "As far as I can see, the greater amount of education which a part of the working class has enjoyed for some years past is

By incorporating an overwhelming proportion of women and children among the workers it employs, machinery was at length enabled to break down the resistance which the male operatives in the manufacturing period continued to oppose to the despotism of capital.¹

B. Prolongation of the Working Day

Though machinery be the most potent means for increasing the productivity of labour, that is to say for reducing the amount of labour time necessary for the production of a commodity, in the hands of capital it becomes the most powerful means, in the industries on which it first establishes its grip, for lengthening the working day far beyond the bounds imposed by nature. For, on the one hand, it creates new conditions which enable capital to give free rein to its invariable tendencies in this direction; and, on the other hand, it supplies new motives with which to whet the hunger of capital for others' labour.

In the first place, in machinery, the movements and the activities of the implements of labour acquire, as it were, an independent life of their own, confronting that of the worker. Machinery constitutes a sort of industrial perpetual motion, which would go on reproducing without pause, did it not encounter in its human assistants certain obstacles—their bodily weaknesses and their wills. This automaton, machinery, possesses, as capital and through the instrumentality of the capitalists, both consciousness and a will; it is therefore animated with an urge to reduce to a minimum the resistance offered by the natural but elastic limitations

an evil. It is dangerous, because it makes them independent." *Children's Employment Commission, Fourth Report, London, 1863, p. 158.*

¹ "Mr. E., a manufacturer [factory owner] . . . informed me that he employed females exclusively at his power-loom, . . . gives a decided preference to married females, especially those who have families at home dependent on them for support; they are attentive, docile, more so than unmarried females, and are compelled to use their utmost exertions to procure the necessities of life. Thus are the virtues, the peculiar virtues of the female character to be perverted to her injury—thus all that is most chivalric and tender in her nature is made a means of her bondage and suffering." *Twelve Years' Factory Bill, a speech of Lord Ashley, March 13, London, 1844, p. 29.*

of the human material through which it works.¹ The resistance of the human material is, moreover, lessened by the apparent ease of work at the machine; and by the employment of women and children, who are more pliable and docile than men.²

As we have seen, the productivity of machinery is in inverse ratio to the magnitude of the constituent value transferred by it to the finished article. The longer the life of the machine, the greater is the mass of products to which it transfers its value, and the smaller therefore is the proportion of value which it contributes to any one commodity. The active life of a machine is, however, obviously dependent upon the length of the working day, or upon the duration of the daily labour process, multiplied by the number of days for which the process is carried on.

The wear and tear of the machine does not correspond with mathematical exactitude to the time for which it is used. Even if it did, a machine working for 16 hours a day during 7½ years, works for the same period of time, and transfers to the total product the same amount of value, as if it worked only 8 hours a day for a period of 15 years.

¹ "Since the general introduction of expensive machinery, human nature has been forced far beyond its average strength." Robert Owen, *Observations on the Effects of the Manufacturing System*, second edition, London, 1817.

² The English, who are prone to regard the first empirical phenomenal form of a thing as its cause, are apt to declare that the length of the working day in the factories was the outcome of the great, the Marat-like campaign for the kidnapping of children, which the capitalists carried out in the workhouses and the orphan asylums during the early days of the factory system—a campaign which supplied them with abundant consisting human material. For instance, Fielden (himself a factory owner) writes: "It is evident that the long hours of work were brought about by the circumstance of so great a number of destitute children being supplied from different parts of the country, that the masters were independent of the hands, and that, having once established the custom by means of the miserable materials they had procured in this way, they could impose it on their neighbours with the greater facility."

J. Fielden, *The Cause of the Factory System*, London, 1838, p. 11.—Concerning the labour of women, Factory Inspector Saunders tells us in the *Reports* for 1844: "Amongst the female operatives there are some women who, for many weeks in succession, except for a few days, are employed from 6 a.m. till midnight, with less than 2 hours for meals, so that on 5 days of the week they have only 4 hours left out of 24, for going to and from their homes and resting in bed."

but in the former case the value of the machine would be reproduced twice as fast as in the latter case, and the capitalist would, by this use of the machine, pouch in $7\frac{1}{2}$ years as much surplus labour as, if the machine were used only half as fast, he would pouch in 15 years.

The material wear and tear of the machine is of two kinds. The first kind arises out of its actual use, just as coins get worn by circulation. The second kind is the outcome of non-use, much as an unused sword rusts in the scabbard. This latter kind of wear and tear is the work of the elements. The former kind of wear and tear is, more or less, directly proportional to the use of the machine; the latter kind is, in a certain measure, inversely proportional to its use.¹

But, in addition to material wear and tear, the machine is subject to what we may call moral wear and tear. It forfeits its exchange-value in proportion to the extent to which machines of the same type of construction come to be obtainable more cheaply, and in proportion to the extent to which better machines than itself are made and enter into competition with it.² In either case, its value, however young and vigorous it may still be, is no longer determined by the actual amount of necessary labour time which has been incorporated in it, but by the amount of necessary labour time requisite for its own reproduction, or for the reproduction of the better machine. That is to say, its value has fallen off more or less. The shorter the period within which its integral value is reproduced, the less danger is there of this moral wear and tear; and the longer the working day, the shorter is this period. When machinery is first introduced into any branch of production, new methods by which such machinery can be reproduced more cheaply arise in rapid succession;³ so, likewise, are improvements introduced speedily, one after another, affecting not only separate parts or apparatus, but the whole construction

¹ "Constant . . . injury, to the delicate moving parts of metallic mechanism by inaction." Ure, *op. cit.*, p. 28.

² The Manchester spinner referred to on p. 203 tells us that the allowance for deterioration of machinery "is also intended to cover the loss which is constantly arising from the superseding of machines, before they are worn out, by others of a new and better construction". "Times", November 26, 1860.

³ "It has been estimated, roughly, that the first individual of a newly-invented machine will cost about five times as much as the construction of the second." Babbage, *op. cit.*, p. 211.

of the machinery. Consequently, in the early days of the life of machinery, this special incentive to an increase in the working day is most vigorously in operation.*

Other things being equal, for a given length of the working day, the exploitation of a double number of workers requires a duplication, not only of that part of constant capital which is invested in machinery and buildings, but also of that part which is invested in raw materials, auxiliary substances, etc. If, on the other hand, the length of the working day be increased, production can be carried on upon an extended scale while the amount of capital invested in machinery and buildings remains unaltered.¹ Not only, therefore, does the surplus value increase, but the outlay necessary to obtain it diminishes. Of course this happens, more or less, with every increase in the working day; but in the present instance the change is more marked, because the part of capital converted into the instruments of labour preponderates to a greater degree.² The development of manufacture fixes a constantly increasing portion of the capital in a form in which, on the one hand, its value is capable of continual self-expansion, and in which, on the other hand, it loses both use-value and exchange-value whenever it loses contact with living labour. "When a labourer", said Mr. Ashworth, a cotton magnate, to Professor Nassau W. Senior, "lays down his spade, he renders useless,

* "The improvements which took place not long ago in frames for making patent net were so great that a machine in good repair which had cost £1200 sold a few years after for £60. . . . Improvements succeeded each other so rapidly that machines which had never been finished were abandoned in the hands of their makers, because new improvements had superseded their utility." Babbage, *op. cit.*, p. 233.—In this period of storm and stress, therefore, the patent net makers soon extended the working day from eight hours to twenty-four hours, working two shifts. (*Ibid.*)

¹ "It is self-evident that, amid the ebbs and flows of the markets, and the alternate expansions and contractions of demand, occasions will constantly occur in which the manufacturer may employ additional floating capital without employing additional fixed capital. . . . if additional quantities of raw material can be worked up without incurring an additional expense for buildings and machinery." R. Torrens, *On Wages and Contributions*, London, 1824, p. 63.

² The matter mentioned in the text is brought up here only for the sake of completeness. Not until I come to Book Three, shall I discuss the rate of profit, that is to say the ratio between surplus value and the total capital invested.

for that period, a capital worth eighteen pence. When one of our people leaves the mill, he renders useless a capital that has cost £100,000."¹ Only fancy? A capital that has cost £100,000 being made "useless" for a single moment? What a monstrous thing that any one of our fellows should ever leave the factory! The increased scope of machinery (as Senior, instructed by Ashworth, realises) makes a continuous increase in the working day "desirable".²

Machinery produces relative surplus value, not only by directly depreciating the value of labour power and by indirectly cheapening it through cheapening the commodities that enter into its reproduction; but also, when it is first introduced into an industry here and there, by transforming the labour employed by the owner of the machinery into labour of a higher potentiality, by raising the social value of the article produced above its individual value, and by thus enabling the capitalist to replace the value of a day's labour power by means of a smaller proportion of the value of the day's product. During this transitional period, in which the use of machinery constitutes a sort of monopoly, profits are therefore exceptionally high, and the capitalist tries to make the most of his chances of exploitation during these "days of first love" by the greatest possible prolongation of the working day. The greatness of the profit whets his appetite for more profit.

As the use of machinery in any particular branch of industry becomes more general, the social value of the product of the machinery falls to its individual value, and the law becomes operative in accordance with which the surplus value does not arise out of the labour powers which the capitalist has replaced by machinery, but, conversely out of the labour powers which are actually employed by

¹ Senior, *Letters on the Factory Act*, London, 1832, pp. 13-14.

² "The great proportion of fixed to circulating capital makes long hours of work desirable." With the increased use of machinery, etc., "the motives to long hours of work will become greater, as the only means by which a large proportion of fixed capital can be made profitable". *Ibid.*, pp. 11-13.—"There are certain expenses upon a mill which go on in the same proportion whether the mill be running short or full time, as, for instance, rent, rates, and taxes, insurance against fire, wages of several permanent servants, deterioration of machinery, with various other charges upon a manufacturing establishment, the proportion of which to profits increases as the production decreases." *Reports of Inspectors of Factories*, October 31, 1862, p. 19.

him in working with the machinery. Surplus value arises only out of the variable portion of capital, and we have seen that the amount of surplus value is determined by two factors, the rate of surplus value, and the number of the workers who are simultaneously employed. For a given length of the working day, the rate of surplus value is determined by the ratio in which the working day is subdivided into necessary labour and surplus labour. The number of the workers simultaneously employed, depends, for its part, upon the ratio between the variable capital and the constant capital. Now it is obvious that, however much the use of machinery may increase the surplus labour at the expense of the necessary labour by increasing the productivity of labour, it brings about this result only by diminishing the number of workmen employed by a given amount of capital. It transforms a part of the capital which was previously variable (was changed, that is to say, into living labour power) into machinery, that is into constant capital, which does not produce any surplus value. For instance, it is impossible to squeeze as much surplus value out of two workers as out of twenty-four. If each of the twenty-four workers, working for a twelve-hour day, provides only one hour's surplus labour, together they provide twenty-four hours of surplus labour, whereas the total labour of two workers amounts to only twenty-four hours. Consequently, in the application of machinery to the production of surplus value, there is an immanent contradiction; for of the two factors of the surplus value which a given amount of capital yields, machinery can increase one of the factors, the rate of surplus value, only by diminishing the other factor, the number of workers. This immanent contradiction discloses itself as soon as, thanks to the generalisation of the employment of machinery in a given industry, the value of the machine-produced commodity becomes the social regulator of the value of all commodities of the kind; and it is this contradiction, once more, which drives capital (though the capitalists are not aware of the nature of their own motives)¹ to enforce the elongation of the working day, in order to compensate the

¹ The reason why capitalists, and the political economists who are entangled in capitalist ways of thinking, are unable to become aware of this immanent contradiction, will be explained in Part One, Book Three.

falling off in the relative number of workers exploited, by an increase in, not only the relative surplus labour, but also the absolute surplus labour.

The capitalist application of machinery thus, on the one hand, supplies new and powerful incentives for an excessive increase in the working day, and radically changes both the methods of labour and the character of the social working organism in such a way as to break down all opposition to this tendency. But, on the other hand, partly by opening out to the capitalist new strata of the working class previously inaccessible to him, and partly by setting free the labourers it supplants, machinery produces a surplus working population,¹ which is compelled to submit to the dictation of capital. That accounts for one of the most remarkable phenomena in the history of modern industry; it accounts for the way in which machinery makes an end of all moral and natural restrictions on the length of the working day. This explains the economic paradox, that the most powerful instrument for shortening labour time, proved to be the most unfailing means for placing every moment of the worker's time and that of his family at the disposal of the capitalist, for the purpose of bringing about the accumulation of capital. Aristotle, the greatest thinker of antiquity, letting his fancy run, said: "If every tool, when called upon, or even of its own accord, could do the work that befits it, just as the inventions of Dædalus moved of themselves, or the tripods of Hephestus went on their own initiative to their sacred work—if the weavers' shuttles were to weave of themselves—then there would be no need either of apprentices for the master craftsmen or of slaves for the lords."² Again, Antipater of Thessalonica, a Greek poet of Cicero's days, acclaimed the invention of the water-wheel for grinding corn (an invention that is the elementary form of all productive machinery) as the giver of freedom to female slaves and the establisher of the Golden Age.³ These

¹ One of Ricardo's greatest services is that he realised that machinery is not only a means for producing commodities, but also a means for producing "redundant population".

² F. Baas, *Die Philosophie der Antike*, vol. II, Berlin, 1875, p. 402.

³ The translation of this poem is worth appending, for, like earlier quotations concerning the division of labour, the verses give an admirable picture of the classical view of this matter, as contrasted with the modern: "Cease from grinding, ye women who toil at the

were poor, benighted pagans! As the shrewd Bastiat and his abler predecessor, McCulloch, discovered, they knew nothing about economics or Christianity. For example, they never realised that machinery is the best possible means for establishing a longer working day. Perhaps they did condone the enslavement of one man, since it was a means for rendering possible the full development of another. But, lacking the gift of Christianity, it never occurred to them to advocate the enslavement of the masses in order to transform a few vulgar and half-educated upstarts into "eminent cotton spinners," "extensive sausage makers," and "influential blacking dealers."

C. Intensification of Labour

Machinery, in the hands of capital, thus leads to an immoderate increase in the length of the working day. This, as we have seen, ultimately brings about a reaction on the part of society, whose life is threatened at its roots; and society decrees a legal limitation of the hours of labour. As soon as the working day has been legally restricted, the intensification of labour, which had already been noticeable under the reign of machinery, becomes much more marked. When we were analysing absolute surplus value, we were primarily concerned with the extension of labour, with its duration, its intensity being taken as fixed. We have now to consider how greater intension can make up for less extension; we have to consider the degree to which labour can be intensified.

As a matter of course, in proportion to the spread of the use of machinery, and in proportion to the accumulation of experience among the members of a class of workers habituated to machinery, labour is speeded up, so that its intensity grows as if in virtue of a natural law. Thus in England, during half a century, an increase in the length of the work-

mill; sleep late, even if the crowing cocks announce the dawn. For Demeter has ordered the Nymphs to perform the work of your hands, and they, leaping down on the top of the wheel, turn its axle, which, with its revolving spokes, turns the heavy concave Nymphian mill-stones. We taste again the joys of the primitive life, leaping to feast on the products of Demeter without labour." [English version by W. R. Paton, Loeb Classical Library, *The Greek Anthology*, in five volumes, Heinemann, London, 1917, vol. III, p. 211.]

ing day went hand-in-hand with an increase in the intensity of factory labour. It is obvious, however, that if we are dealing, not with transient paroxysms of intense labour, but with labour which has to be performed day in and day out for an indefinite period and with perfect regularity, there must come a crucial point at which an extension of the working day and an increase in the intensity of labour will be mutually exclusive, so that an increase in the working day can only be achieved if the intensity of labour be reduced, and, conversely, labour can only be intensified if the working day be shortened. As soon as the gradually increasing indignation of the working class compelled the State to impose a legal limit upon the working day, and to make a start by imposing a normal working day in factories strictly so called—from the moment, that is to say, when an increase in the production of surplus value by an increase in the working day had been rendered impossible once for all—capital, wittingly and with all its might, devoted itself to the production of relative surplus value by accelerating the development of machinery. At the same time there ensued a change in the character of relative surplus value. Speaking generally, the method of producing relative surplus value is this, that, thanks to the enhanced productivity of labour, the worker is to be enabled to produce more in a given period by means of the same expenditure of labour. After the change, just as before, in a given labour time the same amount of value is added to the aggregate product; but this unaltered exchange-value is now spread over a larger amount of use-value, and consequently the value of the individual commodity declines. It is different when the working day has been compulsorily shortened. There is now an extremely powerful incentive for the development of productivity and for the economising of the means of production. An impetus is given to attempts to bring about a greater expenditure of labour in a given time, to intensify the energy of labour, to reduce as far as possible any gaps in the working time. In a word, there is enforced upon the worker a condensation of his labour such as is only possible to him within a shortened working day. This condensation of a greater mass of labour within a given period of time, counts henceforward as what it really is, as a greater quantity of labour. Labour time must be measured, not only in respect of its extension, but also in respect of its

degree of condensation.¹ The comparatively intensive hour of the 10-hour working day now contains more labour, that is to say more expenditure of labour power, than the comparatively porous hour of the 12-hour working day. Its product, therefore, has as much value as or more value than the product of the comparatively porous $1\frac{1}{2}$ hours. Apart from the increase in the relative surplus value through the increased productivity of labour, $3\frac{1}{2}$ hours of surplus labour and $6\frac{1}{2}$ hours of necessary labour will now yield the capitalist the same quantity of value as was formerly yielded by 4 hours of surplus labour and 8 hours of necessary labour.

We now have to ask, how the labour is intensified.

The first effect of a reduction in the working day is due to the operation of the self-evident law that the working capacity of labour power is in inverse ratio to the hours of labour. Within certain limits, therefore, what is lost in point of time will be gained in point of the manifestation of energy. Capital sees to it by the method of payment that the worker shall actually expend more labour power.² In those industries, such as the potteries, in which machinery plays little part, the passing of the Factory Act has given a convincing demonstration that a simple shortening of the hours of labour has a remarkable effect in increasing the regularity, uniformity, orderliness, continuity, and energy of the labour.³ But it seemed doubtful whether this result would be achieved in factories properly so called, for there the dependence of the worker upon the continuous and uniform movement of the machinery had long ago established the strictest possible discipline. When, therefore, in 1844, proposals were mooted for the reduction of the working day below 12 hours, the factory owners were almost unanimous in their declarations "that their overlookers in the different rooms took good care that the hands lost no time," that the "extent of

¹ There are, of course, differences in the intensity of labour in different branches of production. In part, at least, these compensate one another, as Adam Smith showed long ago, thanks to the influence of minor considerations, peculiar to each sort of labour. But the use of labour time as a measure of value is only affected by this in so far as the duration of labour and the intensity of labour are two antithetically and mutually exclusive expressions for one and the same quantity of labour.

² This remark applies especially to piece-work, a method we shall study in Part Six of this book.

³ Cf. *Reports of Inspectors of Factories*, October 31, 1863.

vigilance and attention on the part of the workmen was hardly capable of being increased", and that, therefore, the speed of the machinery and other conditions remaining unaltered, "to expect in a well-managed factory any important result from increased attention of the workmen was an absurdity".¹ This contention was refuted by experiment. In his two large factories at Preston, Mr. R. Gardner began, on April 20, 1844, to run the works for only 11 hours a day instead of 12. After about a year, he announced the result that "the same amount of product for the same cost was received, and the workpeople as a whole earned in 11 hours as much wages as they did before in 12".² I disregard experiments made in the spinning and carding rooms, for in these the speed of the machinery was increased by 2 %. But in the weaving department (where, it may be mentioned, various kinds of figured fancy articles were woven) there was no change whatever in the objective conditions of production—except for the shortening of the hours of labour. The result was: "From 6th January to 20th April, 1844, with a 12-hour day, average weekly wages of each hand 10s. 2½d., from 20th April to 29th June, 1844, with day of 11 hours, average weekly wages 10s. 3½d."³ Here, in 11 hours, more was produced than had formerly been produced in 12, solely in consequence of steadier application and greater economy of time on the part of the workpeople. While they received the same wages and gained an hour's free time, the capitalist received the same quantity of products and was spared expenditure upon coal, gas, etc., during one hour daily. Similar experiments were carried out in the factories of Messrs. Horrocks and Jackson, with equal success.⁴

A reduction in the hours of labour provides the subjective conditions requisite for the condensation of labour, inasmuch

¹ *Reports of Inspectors of Factories*, 1844, and the quarter ending April 30, 1845, pp. 50–51.

² *Ibid.*, p. 12.—Since the wages for piece-work were unaltered, the weekly wages depended on the quantity produced.

³ *Ibid.*, p. 22.

⁴ *Ibid.*, p. 21.—A moral element played a considerable part in the above experiments. The workpeople told the factory inspector: "We work with more spirit, we have the reward ever before us of getting away sooner at night, and an active and cheerful spirit pervades the whole mill, from the youngest piece to the oldest hand, and we can greatly help each other."

as it increases the capacity of the worker for expending more energy within a given time. As soon as a shorter day is enforced by legal enactment, machinery in the hands of capital is objectively and systematically applied to the squeezing out of more labour within a given time. This is effected in two ways; first, by speeding-up the machinery, and, secondly, by increasing the size of the worker's working field, by giving him a larger amount of machinery to mind. An improved construction of the machinery is, to some extent, necessary for the exercising of greater pressure upon the worker; but in part such an improvement is spontaneous accompaniment of the intensification of labour, for a limitation of the working day forces the capitalist to have a keener eye to thrift in the costs of production. An improvement in the steam-engine increases the number of piston strokes per minute; and at the same time, owing to the economising of power, allows a more comprehensive machinery to be driven by the same motor and with a consumption of the same amount of coal, or even less. Improvement in the transmitting mechanism reduces friction; and further (this is what markedly distinguishes modern machinery from that of earlier days) lessens the diameter and the weight of the shafting to a constantly falling minimum. Finally the improvements in the working machines have, while reducing their size, increased their speed and efficiency, as in the case of the modern power-loom; or, while increasing the size of their framework, have also increased the extent and number of their working tools, as in the case of spinning mules; or they have increased the mobility of these working tools by trifling changes in detail, such as those which, fifty years ago, increased the speed of the self-acting mule by one-fifth.

The reduction in the length of the working day to 12 hours dated, in England, from 1832. In 1836, an English factory owner declared: "The labour now undergone in the factories is much greater than it used to be . . . compared with 30 or 40 years ago, . . . owing to the greater attention and activity required by the greatly increased speed which is given to the machinery."¹ In the year 1844, Lord Ashley, now Lord Shaftesbury, made the following statements in the House of Commons, supporting them by documentary evidence:

¹ John Fielden, *op. cit.*, p. 38.

"The labour performed by those engaged in the processes of manufacture is three times as great as in the beginning of such operations. Machinery has executed, no doubt, the work that would demand the sinews of millions of men; but it has also prodigiously multiplied the labour of those who are governed by its fearful movements. . . . In 1815, the labour of following a pair of mules spinning cotton of No. 40—reckoning 12 hours to the working day—involved a necessity of walking 8 miles. In 1832, the distance travelled in following a pair of mules, spinning cotton yarn of the same number, was 20 miles, and frequently more. In 1835,¹ the spinner put up daily, on each of these mules, 820 stretches, making a total of 1640 stretches in the course of the day. In 1832, the spinner put up on each mule 2200 stretches, making a total of 4400. In 1844, 2400 stretches, making a total of 4800; and in some cases the amount of labour required is even still greater. . . . I have another document sent to me in 1842, stating that the labour is progressively increasing—increasing not only because the distance to be travelled is greater, but because the quantity of goods produced is multiplied, while the hands are fewer in proportion than before; and, moreover, because an inferior species of cotton is now often spun, which it is more difficult to work. . . . In the carding room there has also been a great increase of labour. One person there does the work formerly divided between two. In the weaving room, where a vast number of persons are employed, and principally females . . . the labour has increased within the last few years fully 10 %, owing to the increased speed of the machinery in spinning. In 1838, the number of hanks spun per week was 18,000; in 1843, it amounted to 21,000. In 1839, the number of picks in power-loom weaving per minute was 60—in 1842 it was 140, showing a vast increase of labour."²

In view of the remarkable intensity which labour had attained in this way under the dominion of the Twelve Hours Act, there appeared to be a certain justification for the assertion then made by the British factory owners, that any further progress in that direction was impossible, this implying that any further decrease in the working day would be tantamount to a decrease in production. The

¹ Presumably a misprint for 1815 or 1825.

² Lord Ashley, *op. cit.*, pp. 4-9, *passim*.

apparent soundness of their reasonings will be best shown by the following contemporary statement made by Factory Inspector Leonard Horner, an untiring critic of the factory owners.

"Now, as the quantity produced must, in the main, be regulated by the speed of the machinery, it must be the interest of the mill owner to drive it at the utmost rate of speed consistent with these following conditions, viz. the preservation of the machinery from too rapid deterioration; the preservation of the quality of the article manufactured; and the capability of the workman to follow the motion without a greater exertion than he can sustain for a constancy. One of the most important problems, therefore, which the owner of a factory has to solve is to find out the maximum speed at which he can run, with a due regard to the above conditions. It frequently happens that he finds he has gone too fast, that breakages and bad work more than counter-balance the increased speed, and that he is obliged to slacken his pace. I therefore concluded, that, as an active and intelligent mill owner would find out the safe maximum, it would not be possible to produce as much in 11 hours as in 12. I further assumed that the operative paid by piece-work, would exert himself to the utmost consistent with the power of continuing at the same rate."¹ Horner's conclusion was, therefore, notwithstanding the experiments made by Gardner and others, that a further reduction of the working day below 12 hours would necessarily reduce the quantity of the product.² Ten years later, he quoted the opinion he had expressed in 1845 as a proof of how much he had then underestimated the elasticity of machinery and of human labour power when they are simultaneously put on the utmost stretch by the compulsory reduction of the working day.

Let us now turn to the period after 1847, when the Ten Hours Act had become operative in British cotton, wool, silk, and flax textile works.

"The speed of the spindles has increased upon throstles 500, and upon mules 1000 revolutions a minute, i.e. the speed of the throstle spindle, which in 1839 was 4500 times a minute, is now (1862) 5000; and of the mule spindle, that

¹ *Reports of Inspectors of Factories*, quarter ending September 30, 1846, and from October 1, 1846, to April 30, 1847, p. 20.

² *Op cit.*, p. 22.

was 3000, is now 6000 times a minute, amounting in the former case to one-tenth and in the second case to one-fifth additional increase."¹ James Nasmyth, the famous civil engineer of Patricroft, near Manchester, writing to Leonard Horner in 1852, explained the nature of the improvements that had been made in the steam-engine between 1848 and 1852. After remarking that the horse-power of steam-engines, being always estimated in the official returns in accordance with the power of similar engines in 1828,² was only nominal, and could merely serve as a general indication of their real power, he went on to say: "I am confident that from the same weight of steam-engine machinery, we are now obtaining at least 50% more duty or work performed on the average, and that in many cases the identical steam-engines which in the days of the restricted speed of 220 feet per minute, yielded 50 horse-power, are now yielding upwards of 100. . . . The modern steam-engine of 100 horse-power is capable of being driven at a much greater force than formerly, arising from improvements in its construction, the capacity and construction of the boilers, etc. . . . Although the same number of hands are employed in proportion to the horse-power as at former periods, there are fewer hands employed in proportion to the machinery."³ In the year 1850, the factories of the United Kingdom employed 134,217 nominal horse-power to give motion to 25,638,716 spindles and 301,445 looms. In 1856, the number of spindles and looms was respectively 33,903,580 and 369,205. Had the requisite horse-power remained as in 1850, 175,000 horse-power would have been needed in 1856. According to the Official Return, however, only 161,435 horse-power were needed, this being 10,000 less than according to an estimate on the

¹ *Reports of Inspectors of Factories*, October 31, 1862, p. 62.

² This was altered in the *Parliamentary Return of 1862*. In that document, the real horse-power of the modern steam-engines and water-wheels is given, in place of the nominal horse-power. (See the previous footnote on the subject of horse-power, p. 419.) Moreover, the double spindles are no longer included among the spinning spindles, as was the case in the Returns of 1850, 1855, and 1856. Further, in the case of the woollen mills, the number of "gigs" is added; a distinction is made between jute and hemp mills, on the one hand, and flax mills, on the other; and, finally, for the first time, stocking weaving is inserted in the report.

³ *Reports of Inspectors of Factories*, October 31, 1856, pp. 13-14, 20; and 1852, p. 23.

1850 basis.¹ "The facts thus brought out by the Return [of 1856] appear to be that the factory system is increasing rapidly; that although the same number of hands are employed in proportion to the horse-power as at former periods, there are fewer hands employed in proportion to the machinery; that the steam-engine is enabled to drive the increased weight of machinery at economy of force and other methods, and that an increased quantity of work can be turned off by improvements in machinery, and in methods of manufacture, by increase of speed of the machinery, and by a variety of other causes."² Again: "The great improvements made in machines of every kind have raised their productive power very much. Without any doubt the shortening of the hours of labour . . . gave the impulse to these improvements. The latter, combined with the more intense strain on the workman, have had the effect that, at least as much is produced in the shortened [by 2 hours or $\frac{1}{4}$ th] working days as was previously produced during the longer one."³

The following fact suffices to show how much the wealth of the factory owners increased concomitantly with the more intense exploitation of labour power. From 1838 to 1850, the average proportional increase in British cotton and other factories was 32 %, while from 1850 to 1856 it was 86 %.

Great as was the advance of British industry during the eight years from 1848 to 1856, when the ten-hour working day was first in operation, that advance was greatly surpassed during the six years between 1856 and 1862. In silk factories, for instance, there were in 1856, 1,093,799 spindles; in 1862, there were 1,388,544; in 1856, there were 9260 looms; in 1862, there were 10,709. But whereas in 1856 the number of operatives was 56,131, in 1862 the number had fallen to 52,429. Thus there was a 26.9 % increase in the spindles, and a 15.6 % increase in the looms, at the very time when the number of operatives fell by 7 %. In the year 1850, there were at work in worsted mills, 875,830 spindles; in 1856, there were 1,324,549 (an increase of 51.2 %); and in 1862, there were 1,289,172 (a decrease of 2.7 %). If, however, we deduct the doubling spindles that are included in the num-

¹ *Op. cit.*, pp. 14-15.

² *Op. cit.*, p. 20.

³ *Reports of Inspectors of Factories*, October 31, 1858, pp. 9-10.—See also *Reports, etc.*, April 30, 1862, pp. 38 et seq.

bers for 1856, but not in the numbers for 1862, we find that, after 1856, the number of spindles remained almost stationary. On the other hand, after 1850, the speed of the spindles and the looms was in many instances doubled. In 1850, the number of power-loom in worsted mills was 32,617; in 1856, it was 58,995; and in 1862, it was 43,048. In 1850, the number of operatives was 79,737; in 1856, it was 87,794; in 1862, it was 86,063. Children under fourteen were included in the above figures: in 1850, these children numbered 9956; in 1856, they numbered 11,228; in 1862, they numbered 13,178. In spite, therefore, of the great increase in the number of looms in the year 1862 as compared with the year 1856, the total number of workpeople employed decreased, but that of the children who were being exploited increased.¹

On April 27, 1863, Mr. Ferrand said in the House of Commons: "I have been informed by delegates from 16 districts of Lancashire and Cheshire, in whose behalf I speak, that the work in the factories is, in consequence of the improvements in machinery, constantly on the increase. Instead of as formerly, one person with two helps tending two looms, one person now tends three looms without helps, and it is no uncommon thing for one person to tend four. Twelve hours' work, as is evident from the facts adduced, is now compressed into less than ten hours. It is therefore self-evident, to what an enormous extent the toil of the factory operative has increased during the last ten years."²

Although, therefore, the factory inspectors, indefatigably and with good reason, extolled the favourable results of the Acts of 1844 and 1850, they admitted nevertheless that the reduction in the working day had led to an intensification of labour which already exercised a bad effect upon the health of the workers, and therefore upon their working

¹ *Report of Inspectors of Factories*, October 31, 1862, pp. 100 and 130.

² On the modern power-loom a weaver, using two looms, now makes in a week of 60 hours, 25 pieces of a certain quality, length, and breadth, whereas on the old power-loom he could make no more than 4 such pieces. The cost of weaving one piece of such cloth fell soon after 1850 from 2s. 9d. to 5½d.—"Thirty years ago (1841), one spinner with three piecers was not required to attend to more than one pair of mules with 300-304 spindles. At the present time (1871), he has to mind with the help of five piecers 2200 spindles, and produces not less than seven times as much yarn as in 1841." Alexander Badgrave, factory inspector, "*Journal of Arts*", January 5, 1872.

capacity. "In most of the cotton, worsted, and silk mills, an exhausting state of excitement necessary to enable the workers satisfactorily to mind the machinery, the motion of which has been greatly accelerated within the last few years, seems to me not unlikely to be one of the causes of that excess of mortality from lung disease which Dr. G. Greenhow has pointed out in his recent report on the subject."¹ It is absolutely indisputable that the tendency of capital, as soon as a prolongation of the working day is once for all prohibited, to compensate itself by systematically increasing the intensity of labour, and the tendency of capital to make of every improvement in machinery a more effective means of getting the utmost out of labour power, will ere long lead to a state of things that will make a further reduction in the hours of labour inevitable.² On the other hand, the rapid advance made by British industry between 1848 and the present time, during the period when the ten-hour day has been in vogue, exceeds the advance made between 1813 and 1837, when the working day was one of twelve hours; and the advance made during the ten-hour period surpasses the advance made during the twelve-hour period far more than the advance made during the twelve-hour period surpasses the advance made during the fifty years that followed the first introduction of the factory system, the fifty years when the working day had no legal limits whatever.³

¹ *Reports of Inspectors of Factories*, October 31, 1880, pp. 25-26.

² In Lancashire an agitation for an eight-hour day has now (1887) begun among the factory operatives.

³ The table on the following page shows the increase in the output of British factories since 1848.

See the Blue Books, *Statistical Abstract of the United Kingdom*, Nos. 8 and 13, London, 1881 and 1886.—In Lancashire, the number of mills increased only 4 % between 1838 and 1850; 19 % between 1850 and 1856; and 33 % between 1856 and 1861; while the persons employed in them during each of the above eleven-year periods increased absolutely, but diminished relatively. (*Reports of Inspectors of Factories*, October 31, 1882, p. 63.) Lancashire holds the premier place in cotton manufactures. As regards the fabrication of yarn and textiles generally, the important part played by that county is shown by the fact that of all the textile factories in England, Wales, Scotland, and Ireland, 49·2 % belong to the county of Lancashire; of all the spindles, 83·3 %; of all the power-looms, 81·4 %; of all the steam horse-power used in the textile factories, 71·6 %; and of the total number of operatives in such factories, 58·2 %. (*Op. cit.*, pp. 60-63.)

		Quantity Reported, 1894.	Quantity Reported, 1895.	Quantity Reported, 1896.
Cotton—				
Yarn ..	lbs.	11,241,216	12,042,265	12,042,265
Woolen Yarn ..	lbs.	—	—	—
Woolen Cloth ..	yards	1,000,000	1,000,000	1,000,000
Woolen and Worsted—				
Yarn ..	lbs.	11,241,216	12,042,265	12,042,265
Cloth ..	yards	1,000,000	1,000,000	1,000,000
Woolen and Worsted—				
Yarn ..	lbs.	11,241,216	12,042,265	12,042,265
Cloth ..	yards	1,000,000	1,000,000	1,000,000
Woolen and Worsted—				
Yarn ..	lbs.	11,241,216	12,042,265	12,042,265
Cloth ..	yards	1,000,000	1,000,000	1,000,000

	Value Reported, 1894.	Value Reported, 1895.	Value Reported, 1896.
Cotton—			
Yarn ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Woolen Yarn ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Woolen Cloth ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Woolen and Worsted—			
Yarn ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Cloth ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Woolen and Worsted—			
Yarn ..	£ 1,000,000	£ 1,000,000	£ 1,000,000
Cloth ..	£ 1,000,000	£ 1,000,000	£ 1,000,000

4. THE FACTORY.

In the beginning of this chapter, we studied what we may call the body of the factory, the organisation of the machine system. We saw how machinery leads to an increase in the amount of human material for exploitation, by its annexation of the labour of women and children; how it extends its grip over the whole of the worker's life-time by its immoderate extension of the working day; and how its progress, which renders possible an enormous increase of production in ever shorter periods, serves as a means for the establishment of a system by which more and more work is done in a shorter time—as a means by which labour power is more and more intensively exploited. Let us now turn to consider the factory as a whole, the factory in its most highly developed form.

Dr. Ure, the Pindar of the automatic factory, describes it, on the one hand, as "combined cooperation of many orders of workpeople, adult and young, in tending with assiduous skill a system of productive machines, continuously impelled by a central power"; and on the other hand, as "a vast automaton, composed of various mechanical and intellectual organs, acting in uninterrupted concert for the production of a common object, all of them being subordinate to a self-regulating moving force". These two descriptions are far from being identical. In the former, the collective labourer, or the social body of labour, is treated as the dominant subject, and the mechanical automaton is treated as the object; in the latter, the automaton has become the subject, and the workers have become nothing more than the conscious organs coordinated with the unconscious organs of the automaton, and, like them, subordinated to the central motive force. The former description is applicable to all possible ways of employing machinery on a large scale; the latter is characteristic of the capitalist use of machinery, and consequently of the modern factory system. Ure, therefore, prefers to describe the central machine from which the movement proceeds, not merely as an automaton, but also as an autocrat. "In these specious halls the benignant power of steam summons around him his myriads of willing menials."¹

Along with the tool, the worker's skill in handling it

¹ Ure, *op. cit.*, p. 14.

passes over to the machine. The functional capacity of the tool is now emancipated from the personal restrictions imposed upon the worker's labour power. This sweeps away the technical foundation upon which the manufacturing division of labour is based. Instead of the hierarchy of specialised workers which was characteristic of the manufacturing division of labour, we find that in the automatic factory there is a tendency towards the equalisation or levelling down of the work which the assistants of the machinery have to perform.¹ The artificial differences between the detail workers are now mainly replaced by natural differences in age and sex.

In so far as the division of labour reappears in the automatic factory, it is, at first, in the form of a distribution of the workers among the specialised machines, and a distribution of masses of workmen (who are not yet organised in groups) among the various departments of the factory, in which they work at a number of similar machines placed side by side. Thus their cooperation is only of the simple form. The organised group peculiar to manufacture has been replaced by a connexion between the head worker and a few assistants. The main cleavage is that between the workers who are actually employed at the mechanised tools (including also some of the workers who mind the motor mechanism or supply it with fuel), on the one hand, and those who are mere attendants of these workers, children for the most part, on the other. Among the assistants we may count all the "feeders", those whose only business it is to keep machines supplied with working material. In addition to the two main classes just mentioned, there is a staff of persons, few in number, whose business it is to look after the machinery as a whole, and to keep it in good repair: engineers, mechanics of various kinds, joiners, etc. These comprise a superior class of workmen, some of them scientifically trained, and some of them skilled craftsmen; they are distinct from the class of factory operatives, and are merely aggregated with these.² This division of labour is purely technical.

¹ *Op. cit.*, p. 31.—See also Karl Marx, *Ministère de la Philosophie*, pp. 142-143.

² British factory legislation expressly excludes from its operation the class of workers just mentioned, since, according to the Act, they are not factory operatives; whereas the *Parliamentary Returns*

One who has to work at a machine, has to be trained to it from early youth upwards, so that he can learn to adapt his own movements to the uniform and continuous motion of an automaton. In so far as the machinery as a whole forms a system of manifold machines, working simultaneously and in concert, the co-operation based upon the use of machinery requires the distribution of differing groups of workers among the different machines. But machine-facture does away with the need for stereotyping this distribution, as it is stereotyped in the manufacturing system, by the persistent association of a particular man to a particular function.¹ Since the integral movement of the factory does not proceed from the worker but from the machine, there can be a continuous change of personnel without any interruption of the labour process. The most striking proof of this is afforded by the relay system which was put into operation by the British factory owners during their revolt from 1848 to 1850. Finally, the quickness with which young people can learn to work at a machine, is another reason why it is necessary to train up a special class of workers who will function exclusively as machine-operatives.²

no less expressly include among factory operatives, not only working engineers, mechanics, etc., but also the managerial staff, the clerks, the messengers, the watchmen, the peckers, etc.—in a word, every one about the place, except the factory owner. This conclusion seems like a deliberate attempt to tangle the statistical issues, and details of similar misrepresentations in other cases could easily be given.

¹ One admits this. He says that "in case of need" the workmen can be moved at the will of the manager from one machine to another; and he triumphantly exclaims: "Such a change is in flat contradiction with the old routine that divides the labour, and to one workman assigns the task of fashioning the head of a needle, to another the sharpening of the point." He would have done better had he asked himself why it is that, in the automatic factory, this "old routine" is departed from only "in case of need".

² In times of bad trade, as happened, for instance, during the American Civil War, factory workers are sometimes set by the bourgeoisie to do the roughest kinds of work, such as reed making, and the like. The British "national workshops" of 1862 and the following years, established for the benefit of the destitute cotton operatives, differed from the French "national workshops" of 1848 in this respect, that in the latter the workers were set to do unproductive work at the cost of the State, whereas in the former they had to do productive urban work for the advantage of the bourgeoisie, and had to work at lower rates of pay than the regular workmen, with whom they were thus thrown into competition. "The physical appearance of the cotton operatives is unquestionably im-

As regards the work of the mere hodmen, this can, to some extent, be replaced in the mills by machines,¹ and, owing to its great simplicity, no difficulty attaches to a rapid and constant change in the individuals burdened with this drudgery.

Although, then, machinery makes an end, technically speaking, of the old system of the division of labour, that system lingers for a time in the factory, as a custom handed down from manufacture, and is subsequently remoulded systematically, and established in a yet more hideous form as a means for the exploitation of labour power. The life-long speciality of handling the same tool which performs a partial operation, becomes the life-long speciality for serving a machine which performs a partial operation. Machinery is misused, in order to transform the worker from childhood upwards into part of a detail machine.² In this way, not only are the expenses of the worker's reproduction considerably lessened, but at the same time his absolute dependence upon the factory as a whole (upon the capitalist, that is to say) is perfected. Here, as everywhere, we must distinguish between the greater productivity which is due to the development of the social process of production, and the greater productivity which is due to the capitalist exploitation of that process.

proved. This I attribute, . . . as to the men, to outdoor labour on public works." The reference is to the factory workers of Preston who had been set to work on Preston Moor. *Reports of Inspectors of Factories*, October 31, 1883, p. 50.

¹ Here is an example. Since the Act of 1842 was passed, various mechanical appliances have been introduced into woollen mills in order to replace the labour of children. When the children of the quality, the children of the factory owners themselves, have to go through a course of schooling as helpers in the factory, this almost unexplored domain of mechanics will be characterised by remarkable progress. "Of machinery, perhaps self-acting mules are as dangerous as any other kind. Most of the accidents from them happen to little children, from their creeping under the mules to sweep the floor while the mules are in motion. Several 'murders' have been fined for this offence, but without much general benefit. If machine makers would only invent a self-sweeper by whose use the necessity for these little children to creep under the machinery might be prevented, it would be a happy addition to our protective measures." *Reports of Inspectors of Factories*, October 31, 1886, p. 63.

² So much for the wonderful idea of Proudhon, who "constructs" machinery, not as a synthesis of the means of labour, but as a synthesis of detail operations, a synthesis effected for the worker's own benefit.

In manufacture and in handicrafts, the worker uses a tool; in the factory, he serves a machine. In the former case, the movements of the instrument of labour proceed from the worker; but in the latter, the movements of the worker are subordinate to those of the machine. In manufacture, the workers are parts of a living mechanism. In the factory, there exists a lifeless mechanism independent of them, and they are incorporated into that mechanism as its living appendages. "The dull routine of ceaseless drudgery and toil, in which the same mechanical process is incessantly repeated, resembles the torment of Sisyphus—the toil, like the rock, recoils perpetually upon the wearied operative."¹ While labour at the machine has a most depressing effect upon the nervous system, it at the same time hinders the multiform activity of the muscles, and prohibits free bodily and mental activity.² Even the lightening of the labour becomes a means of torture, for the machine does not free the worker from his work, but merely deprives his work of interest. All kinds of capitalist production, in so far as they are not merely labour processes, but also processes for promoting the self-expansion of capital, have this in common, that in them the worker does not use the instruments of labour, but the instruments of labour use the worker. However, it is only in machine production that this inversion acquires a technical and palpable reality. Through its conversion into an automaton, the instrument of labour comes to confront the worker during the labour process as capital, as dead labour, which controls the living labour power and sucks it dry. The divorce of the intellectual powers of the process of production from the manual labour, and the transformation of these powers into powers of capital over labour, are completed (as previously indicated) in large-scale industry

¹ J. P. Kay, M.D., *The Moral and Physical Conditions of the Working Classes*, etc., 1839, p. 9.—Even an ordinary and optimistic free trader, Monsieur Molinari, remarks: "A man becomes worn out more quickly when supervising for fifteen hours a day the uniform movements of a mechanism than by exercising his own physical energies for the same space of time. The work of supervision, which would perhaps be useful training for the intelligence if it were not unduly prolonged, destroys in the long run, through its excess, mind and body alike." G. de Molinari, *Études économiques*, Paris, 1846.

² P. Engels, *op. cit.*, p. 218.

based upon machine production. The special skill of each individual machine worker who is thus sucked dry, dwindles into an insignificant item as contrasted with the science, with the gigantic forces of nature, and with the mass of social labour, which are incorporated into the machine system, and out of which the power of the "master" is made. This master, in whose brain the machinery and his monopoly of it are inseparably intertwined, tells his "hands" contemptuously whenever he is at odds with them: "The factory operatives should keep in wholesome remembrance the fact that theirs is really a low species of skilled labour; and that there is none which is more easily acquired, or of its quality more amply remunerated, or which by a short training of the least expert can be more quickly, as well as more abundantly acquired. . . . The master's machinery really plays a far more important part in the business of production than the labour and the skill of the operative, which six months' education can teach, and a common labourer can learn."¹

The technical subordination of the worker to the uniform movement of the instrument of labour, and the peculiar composition of the working body (which is made up of individuals of both sexes and various ages), give rise to a barrack-like discipline, which is elaborated into a complete factory system, involving a full development of the previously described work of supervision—this meaning the division of the workers into operatives and overlookers, into the private soldiers and the non-commissioned officers of an industrial army. "The main difficulty [in the automatic factory] . . . lay . . . above all in training human beings to renounce their desultory habits of work, and to identify themselves with the unvarying regularity of the complex automation. To devise and administer a successful code of factory discipline, suited to the necessities of factory diligence, was the Herculean enterprise, the noble achievement, of Arkwright! Even at the present day, when the system is perfectly organised and its labour lightened to the utmost, it is found nearly impossible to convert persons past the

¹ *The Master Spinner' and Manufacturers' Defence Fund, Report of the Committee, Manchester, 1834, p. 17.*—We shall see later (see p. 492) that the "master" witnesses another time when he is threatened with the loss of his living automata, the workers!

age of puberty into useful factory hands."¹ The factory code (in which capital formulates its autocracy over its workers—in a private legislative system, and without the partition of authority and the representative methods which in other fields are so much loved by the bourgeoisie) is only the capitalist caricature of that social regulation of the labour process which becomes necessary when co-operation is undertaken upon a large scale and when joint instruments of labour in the form of machinery are set to work. In place of the slave driver's lash, we have the over-looker's book of penalties. Of course, all the punishments take the form of fines and deductions from wages; and the legislative talent of the factory Lycurgus is utilised in such a way that, as far as possible, a breach of the regulations is made even more profitable to the employer than their strict observance.*

* See, *op. cit.*, p. 12.—No one who knows the life-story of Arkwright will be inclined to apply the epithet "noble" to this talented barber. Of all the great inventors of the eighteenth century, he was beyond question the arch-thief as far as other people's inventions were concerned, and a fellow of the basest sort.

* "Nowhere is the slavery imposed by the bourgeoisie upon the proletariat so glaringly manifest as in the factory. Here, both legally and in actual fact, freedom is at an end. The worker must be at the factory by half-past five in the morning. Should he come a minute or two late, he is fined; should he be ten minutes late, he is not admitted until breakfast is over, and he then loses a quarter of a day's wages. He must eat, drink, and sleep, at the word of command.

. . . The despotic whistle summons him from his bed, calls him away from his breakfast and his dinner. And what happens, once he is inside the factory? There, the factory owner is an absolute legislator. He issues factory regulations according to his own sweet will and pleasure; he alters his code and makes additions to it just as he likes; and even if he issues the most absurd regulations, the courts say to the worker: "Since you entered into this contract of your own free will, you must abide by it." . . . These workers are sentenced to life under the rod (both actually and metaphorically) from the age of nine until the day of their death." (F. Engels, *op. cit.*, pp. 217 et seq.)—Let me give two examples of what "the courts say". One of them comes from Sheffield, towards the end of the year 1866. A workman had signed on for two years at a steel works in that town. Having had a quarrel with the owner, he left the works declaring, that in no circumstances would he work for that master any more. He was prosecuted for breach of contract, and was sentenced to two months' imprisonment. (If the master breaks the contract, he can only be sued in a civil court, and he risks nothing worse than a fine.) When the workman had served his two months' imprisonment, the owner invited him to return to the works in accordance with the terms of the old contract.

We shall here be content to make passing allusion to the material conditions under which factory work is carried on. All the sense-organs are alike injured by the artificially raised temperature, by the contamination of the air with fragments of the raw material, by the deafening noise, etc.,

The workman refused. He had already been punished for the breach of contract. The owner prosecuted him once more, and the court renewed its sentence, although one of the judges, Mr. Stree, publicly declared it to be a legal monstrosity that a man could be periodically punished for one and the same offence or crime throughout his life-time. This judgment was not given by the "Great Unpaid", the provincial *Députés*, but by the judges of one of the highest courts of justice in London.—[Note by Engels to the fourth German edition: This has now been abolished. Except in a few instances, such as public gasworks, the English worker has been placed on the same footing as his employer as regards breach of contract, and can only be sued in the civil courts.]—The second case comes from Wiltshire, at the end of November 1863. About thirty power-loom weavers in the employ of one Harrapp, a clothmaker at Leaver's Mill, Westbury Leigh, went on strike because of Harrapp's pleasant little way of making deductions from their wages when they were late in the morning: 6d. for two minutes; 1s. for three minutes; and 1s. 6d. for ten minutes. This is at the rate of 9s. per hour, and 4s. 2ss. per day; while the wages of the weavers never exceed, on the average, 10s. to 12s. a week. Harrapp also engaged a boy to announce the starting-time by a whistle, which the youngster often did before 5 o'clock in the morning. If the hands were not all there directly the whistle stopped blowing, the doors were closed, and those hands who were outside were fined. Since there were no clocks in the building, the unhappy hands were wholly at the mercy of the young timekeeper, who was inspired by Mr. Harrapp. The hands on strike, matrons and girls, declared that they were willing to go to work again if the timekeeper were replaced by a clock, and a more reasonable tariff of fines were introduced. Harrapp summoned thirteen women and girls before the magistrates for breach of contract. Each of them was sentenced to 6d. fine and 2s. 6d. costs, much to the indignation of all those members of the public who were present in the court. Harrapp was followed from the court by a crowd of people who booed him.—A favourite occupation with factory owners is to punish the workers by imposing fines on them because of defects in the materials worked on. In 1866, this method led to a general strike in the English potteries. The *Reports of the Children's Employment Commission (1843-1866)* mention cases in which the worker, instead of receiving any wages for his work, was left, thanks to the imposition of fines, in debt to his worthy master. The recent cotton crisis furnished edifying examples of the skill displayed by these factory autocrats in making deductions from wages. Mr. R. Baker, inspector of factories, writes: "I have myself had lately to direct prosecutions against one cotton-mill occupier for having in three pitched and painful times deducted 10d. a piece from some of the young workmen employed by him

etc.—to say nothing of the danger to life and limb that results from the close packing of the machinery, which, with the regularity of the seasons, fills its lists of those killed and wounded in the industrial process.¹ Economy of

for the surgeon's certificate (for which he himself had only paid 6d.) when only allowed by the law to deduct 3d. and by custom nothing at all. . . . And I have been informed of another, who, in order to keep without the law, but to attain the same object, charges the poor children who work for him a shilling each, as a fee for learning them the art and mystery of cotton spinning, so soon as they are declared by the surgeon fit and proper persons for that occupation. There may therefore be undercurrent causes for such extraordinary exhibitions as strikes, not only whatever they arise, but particularly at such times as the present, which, without explanation, render them inexplicable to the public understanding." Mr. Baker is alluding here to a strike of power-loom weavers at Darwen, June 1836. See *Reports of Inspectors of Factories*, April 30, 1836, pp. 50-51.—The reader should note that these reports always overlap their official dates.

¹ No doubt the protection afforded by the Factory Acts against dangerous machinery has had a good effect. "But . . . there are other sources of accident which did not exist twenty years since, one especially, viz. the increased speed of the machinery. Wheels, rollers, spindles, and shuttles are now propelled at increased and increasing rates: fingers must be quicker and defter in their movements to take up the broken thread, for, if placed with hesitation or carelessness, they are sacrificed. . . . A large number of accidents are caused by the eagerness of the workpeople to get through their work expeditiously. It must be remembered that it is of the highest importance to manufacturers that their machinery should be in motion, i.e. producing yarns and goods. Every minute's stoppage is not only a loss of power, but of production, and the workpeople are urged by the overlookers, who are interested in the quantity of work turned off, to keep the machinery in motion; and it is no less important to those of the operatives who are paid by the weight or piece that machines should be kept in motion. Consequently, although it is strictly forbidden in many, nay in most factories, that machinery should be cleaned while in motion, it is nevertheless the constant practice in most if not in all, that the workpeople do, unrebuked, pick out waste, wipe rollers and wheels, etc., while their frames are in motion. Thus from this cause only, 906 accidents have occurred during the six months. . . . Although a great deal of cleaning is constantly going on day by day, yet Saturday is generally the day set apart for the thorough cleaning of the machinery and a great deal of this is done while the machinery is in motion." Inasmuch as cleaning is not paid for, the workpeople seek to get through with it as quickly as possible. Hence "the number of accidents which occur on Fridays, and especially on Saturdays, is much larger than on any other day. On the former, the excess is nearly 12 % over the average number of the four first days of the week, and on the latter day, the excess is 25 % over the average

the social means of production, which is not pursued by forcing-house methods until the factory system comes into operation, is, in the hands of capital, furthermore, a means for the systematic spoliation of the worker's vital necessities while he is engaged at his work. He is robbed of space, of air, of light, and of protection of his person against the dangerous and unwholesome accompaniments of the productive process—to say nothing of the way in which he is robbed of appliances for comfort while he is at work.¹ Was Fourier wrong when he spoke of a factory as “a mitigated form of convict prison”?²

3. STRUGGLE BETWEEN THE WORKER AND THE MACHINE.

The fight between the capitalist and the wage worker dates back to the very origin of capital. It continues to

of the preceding five days; or, if the number of working hours on Saturday be taken into account—7½ hours on Saturday as compared with 8½ on other days—there is an excess of 65 % on Saturday over the average of the other five days.” *Reports of Inspectors of Factories*, October 31, 1866, pp. 9, 15, 16, and 17.

¹ In the first part of Book Three, I shall give an account of a recent campaign on the part of the English factory owners against the clauses of the Factory Acts that aim at protecting the “hands” against dangerous machinery. Enough here to quote from the official report of Factory Inspector Leonard Horner: “I have heard some mill owners speak with inexhaustible levity of some of the accidents: such, for instance, as the loss of a finger, being a trifling matter. A working man’s living and prospects depend so much upon his fingers, that any loss of them is a very serious matter to him. When I have heard such inconsiderate remarks made, I have usually put this question: ‘Suppose you were in want of an additional workman and two were to apply, both equally well qualified in other respects, but one had lost a thumb or a forefinger, which would you engage?’ There never was a hesitation as to the answer.” The manufacturers have “mistaken prejudices against what they have heard represented as a pseudo-philanthropic legislation”. *Reports of Inspectors of Factories*, October 31, 1855.—These factory owners are clever fellows, and they certainly had good reasons for their enthusiastic support of the slave-holder’s rebellion!

² In those factories which have longest been subject to the Factory Act, with its compulsory restriction of the hours of labour and its various other regulations, many of the earlier abuses have ceased to exist. The very improvement of the machinery demands, to a certain extent, “improved construction of the buildings”, and this is an advantage to the workers. Cf. *Reports*, etc., October 31, 1863, p. 109.

rage throughout the manufacturing period.¹ But only since the introduction of machinery has the worker been at war with the instrument of labour itself, with the material embodiment of capital. He revolts against this particular form of the means of production, as being the material basis of the capitalist method of production.

In the seventeenth century, almost all over Europe, there were revolts against the ribbon loom, a machine for weaving ribbons and braid. The ribbon loom was invented in Germany. An Italian abbé, named Lancollotti, in a work published at Venice in the year 1636, but written in 1579, says: "About fifty years ago, Anton Müller, of Danzig, saw in that town a very ingenious machine, which weaves four to six pieces at once. But the town council, being afraid that the invention might throw a large number of the workmen on the streets, had the machine destroyed, and the inventor secretly strangled or drowned." In Leyden, this machine did not come into use until 1609. At first there were riots among the braid workers, so that there, too, the town council was compelled to prohibit its use. By various ordinances issued in 1623, 1639, etc., the States General imposed restrictions on its use. Finally, by an ordinance under date December 15, 1652, its use was permitted on certain conditions. Boschen, referring to the introduction of the machine into Leyden, writes in his *Institutiones politice*, 1663: "In this city, about twenty years ago, there was invented a certain weaving instrument by which one man could make more ribbons and better than many used to make in an equal space of time. Hence there were local disturbances, and complaints made by the weavers, until at last the use of this instrument was forbidden by the town council." The same machine was prohibited in Cologne in the year 1676; and at about this time its

¹ Cf., for instance, John Houghton, *Handiwork and Trade Improved*, London, 1827; also *The Advantages of the East Indian Trade*, 1720; also John Bellars, *op. cit.* Consider also the following quotation: "The masters and their workmen are, unhappily, in a perpetual war with each other. The unvariable object of the former is to get their work done as cheaply as possible, and they do not fail to employ every artifice to this purpose, whilst the latter are equally attentive to every occasion of distressing their masters into a compliance with higher demands." *An Inquiry into the Cause of the Present High Price of Provisions*, 1767, pp. 61-62. (Written by the Rev. Nathaniel Forster, quite on the side of the workers.)

introduction into England was causing disturbances among the workpeople. By an imperial edict of February 19, 1685, its use was forbidden throughout Germany. In Hamburg, it was publicly burned by order of the senate. On February 9, 1729, Charles VI renewed the imperial edict of 1685, and not until 1763 was the use of the ribbon loom openly allowed in Electoral Saxony. This machine, which made such a noise in the world, was, in fact, the forerunner of machine spinning and the power-loom, and was therefore the harbinger of the industrial revolution of the eighteenth century. An inexperienced boy could set the whole loom with all its shuttles in motion by simply moving a rod to and fro. In its improved form it produced from forty to fifty pieces at once.

About 1630, a sawmill driven by wind-power, which had been erected near London by a Dutchman, was destroyed in a riot. Even as late as the beginning of the eighteenth century, sawmills driven by water-power encountered widespread popular resistance. This resistance was supported by parliament, and was only overcome with great difficulty. In 1758, Everet constructed the first wool-shearing machine to be driven by water-power. It was burned by a hundred thousand workpeople who had been thrown out of work. Fifty thousand workers, who had made their living by the carding of wool, petitioned parliament against Arkwright's scribbling mill and carding engines. In the English manufacturing districts during the first fifteen years of the nineteenth century, the increased use of machinery (chiefly in the form of the power-loom) was followed by widespread machine-breaking riots. These disturbances, known as the Luddite movement, gave the anti-Jacobin government, consisting of such men as Sidmouth, Castlereagh, etc., an excuse for forcible and extremely reactionary measures against the working class. Time and experience were needed before the workers could learn to distinguish between machinery itself and the use of machinery by capital; and until they could come to direct their attacks, not against the material instruments of production, but against the particular social form in which these instruments are used.¹

¹ In old-fashioned manufactures we find that, even to-day, the results of the workers against machinery sometimes assume a savage form. This happened, for instance, among the Sheffield silk cutters in 1843.

Wage struggles within the realm of manufacture, presuppose the existence of manufacture, and are nowise directed against its existence. In so far as the spread of the manufacturing system is resisted, the resistance comes from the guilds and from the privileged towns, not from wage workers. The writers of the manufacturing period therefore regard the division of labour chiefly as a means for making good a deficiency of workers, but not as a means for getting rid of those who are actually at work. This distinction is self-evident. Let us suppose, for instance, that 100,000,000 persons would be needed in England in order to spin, with the old-fashioned spinning-wheels, the cotton that is now spun by machinery with the aid of half a million persons; this does not mean that machinery has taken the place of all these millions who never existed. It only means that millions upon millions of workers would be required to replace the spinning machinery. If, on the other hand, we say that in England the power-loom threw 800,000 weavers into the streets, we are not referring to extant machinery which could only be replaced by a definite number of workers, but to a definite number of workers who have actually been replaced or driven into the streets by machinery. In the manufacturing period, handicraft industry, although disintegrated, was still the basis. The new colonial markets could not be satisfied by the products of the comparatively small number of urban operatives who were a legacy from the Middle Ages; and manufactures properly so called opened new fields of production for the countryfolk who had been driven off the land when the feudal system broke up. At that time, therefore, the division of labour and cooperation in the workshop were regarded mainly from the positive outlook, that they made the workers actually in employment, more productive.* It is true that cooperation and the concentra-

* Sir James Stuart, likewise, understands machinery quite in this sense: "Machines therefore I consider as a method of augmenting (virtually) the number of the industrious, without the expense of feeding an additional number. . . . Wherein does the effect of a machine differ from that of new inhabitants?" *An Inquiry into the Principles of Political Economy*, two vols., London, 1767, vol. I, pp. 122 and 123. (Book I, chapter six).—Petty is still more naive, for he says that machinery replaces "polygamy". This point of view can, at most, be accepted for certain parts of the United States.—On the other hand, Percy Rowenstone, in *Thoughts on the*

tion of the means of production into the hands of fewer persons, when applied to agriculture, gave rise to extensive, sudden, and forcible revolutions in the method of production, and therewith in the living conditions and the means of occupation of the rural population—in many countries, long before the period of large-scale industry began. But originally this contest was much more one between large landowners and small landowners, than between capital and wage labour. On the other hand, in so far as workers were driven off the land by instruments of labour, by sheep, by horses, etc., force was here directly resorted to in the first instance as a prelude to the industrial revolution. First of all the workers were driven off the land, and then the sheep came. Land grabbing on a great scale, such as was practised in England, is the first step for the establishment of agriculture upon a large scale.¹ At the outset, therefore, this revolution in agriculture has rather the aspect of a political revolution.

In the form of machinery, the instrument of labour immediately enters into competition with the worker.² The self-expansion of capital by means of machinery is directly proportional to the number of the workers whose means of livelihood have been destroyed by this machinery. The whole system of capitalist production is based upon the fact that the worker sells his labour power as a commodity. Thanks to the division of labour, this labour power becomes

Faust's Spinn and its Effects (London, 1822, p. 15), writes: "Machinery can seldom be used with success to abridge the labour of an individual; more time would be lost in its construction than could be saved by its application. It is only useful when it acts on great masses, when a single machine can assist the work of thousands. It is accordingly in the most populous countries, where there are most idle men, that it is most abundant. . . . It is not called into use by a scarcity of men, but by the facility with which they can be brought to work in masses."

¹ This also applies to Germany. Wherever agriculture on a large scale exists in Germany, this being especially in the Eastern parts of the country, it has only been rendered possible by the "Bauernlegen" which has been in vogue since the sixteenth century, and especially since 1648.—Note added by Friedrich Engels to the fourth German edition. ["Bauernlegen" means the revocation by a feudal overlord of a grant of land in fee to a peasant, and the incorporation of the land in the seigniorial estate. Equivalent to the "clearing of estates" in England and Scotland. See below, pp. 807 and 811.—E. and C. P.]

² "Machinery and labour are in constant competition." Ricardo, *op. cit.*, p. 479.

specialised, is reduced to skill in handling a particular tool. As soon as the guiding of the tool becomes the work of the machine, the use-value and the exchange-value of the worker's labour power disappear. The worker becomes unsaleable, like paper money which is no longer legal tender. That portion of the working class which machinery has thus transformed into superfluous population (this meaning a population which is no longer immediately required to promote the self-expansion of capital), either goes to the wall in the unequal struggle of the old handicraft and manufacturing industry against machine industry, or else floods all the more easily accessible branches of industry, glutting the labour market, and consequently reducing the price of labour power below its value. It is supposed to be a great consolation to these pauperised workers that their sufferings are to some extent no more than a temporary inconvenience; and also that only by degrees does machinery come to dominate a whole field of production, so that the scope and intensity of its devastating effects are mitigated. One of these consolations is neutralised by the other. When machinery invades a field of production by slow degrees, it produces chronic poverty among the workers that have to compete with the machines. When the transition is a rapid one, the effect of machinery is massive and acute. History has no more pitiful spectacle to offer than that of the gradual decay of the English handloom weavers, a process which took several decades, and was finally complete by the year 1838. Many of them died of starvation; many of them continued to vegetate for a long time, supporting themselves and their families upon a wage of 2½d. a day.¹

¹ The competition between handloom weaving and power-loom weaving was prolonged in England for a time, before the introduction of the new Poor Law in 1834, by the payment of outdoor relief to workers whose wages had fallen far below the minimum. 'The Rev. Mr. Turner was in 1847 rector of Winslow in Cheshire, a manufacturing district. The questions of the Committee on Emigration, and Mr. Turner's answers, show how the competition of human labour is maintained against machinery. Question: 'Has not the use of the power-loom superseded the use of the handloom?' Answer: 'Undoubtedly; it would have superseded them much more than it has done, if the handloom weavers were not enabled to submit to a reduction of wages.' Question: 'But in submitting he has accepted wages which are insufficient to support him, and looks to parochial contribution as the remainder of his support?' Answer: 'Yes, and in fact the competition between the handloom and the power-loom

On the other hand, English cotton machinery had an acute effect in India. In 1834-1835, the governor-general reported: "The misery hardly finds a parallel in the history of commerce. The bones of the cotton weavers are bleaching the plains of India." No doubt, in turning the weavers out of this "temporal" world, machinery caused them nothing more than "a temporary inconvenience". All the same, the "temporary" effect of machinery is really permanent, inasmuch as machinery is continually being extended to new branches of production. Speaking generally, the capitalist method of production endows labour conditions and the labour product with an independent and alien aspect as against the workers; but when machinery is introduced, a glaring opposition becomes established.¹ That is why, when machinery is introduced, we for the first time see the workers rise in revolt against the instruments of labour.

The instrument of labour lays the worker low. This direct antagonism between the two becomes most obvious whenever newly introduced machinery enters into competition with handicrafts or manufacturing industry that have come down from former days. But even within the domain of large-scale industry, the perpetual improvements in machinery and the development of the automatic system exercise a similar influence. "The object of improved machinery is to diminish manual labour, to provide for the performance of a process or the completion of a link in a

is maintained out of the poor rates." Thus degrading pauperism, or expatriation, is the benefit which the indolent receive from the introduction of machinery, to be reduced from the respectable and in some degree independent mechanic, to the cowering wretch who lives on the debasing bread of charity. This they call a temporary inconvenience." *A Plain Essay on the Comparative Merits of Competition and Cooperation*, London, 1834, p. 29.

¹ "The same cause which may increase the revenue of the country, may at the same time render the population redundant and deteriorate the condition of the labourer." Ricardo, *op. cit.*, p. 469. In the same passage, Ricardo explains what he means by "the revenue of the country". He means the revenues of landlords and capitalists, whose wealth, from the economist's standpoint, forms the wealth of the nation.—"The constant aim and the tendency of every improvement in machinery is, in fact, to do away entirely with the labour of men, or to lessen its price by substituting the labour of women and children for that of grown-up men, or of unskilled for that of skilled workmen." Ure, *op. cit.*, vol. I, p. 33.

manufacture by the aid of an iron instead of the human apparatus.'¹ Again: "The adaptation of power to machinery heretofore moved by hand, is almost of daily occurrence. . . . The minor improvements in machinery having for their object economy of power, the production of better work, the turning off more work in the same time, or in supplying the place of a child, a female, or a man, are constant, and although sometimes apparently of no great moment, have somewhat important results."² Once more: "Whenever a process requires peculiar dexterity and steadiness of hand, it is withdrawn, as soon as possible from the cunning workman, who is prone to irregularities of many kinds, and it is placed in charge of a peculiar mechanism, so self-regulating that a child can superintend it."³ Yet again: "On the automatic plan, skilled labour gets progressively superseded."⁴ Once more: "The effect of improvements in machinery, not merely in superseding the necessity for the employment of the same quantity of adult labour as before, in order to produce a given result, but in substituting one description of human labour for another, the less skilled for the more skilled, juvenile for adult, female for male, causes a fresh disturbance in the rate of wages."⁵ Yet again: "The effect of substituting the self-acting mule for the common mule is to discharge the greater part of the men spinners and to retain adolescents and children."⁶

How extraordinarily elastic the machine system has become, thanks to the accumulation of practical experience,

¹ *Reports of Inspectors of Factories*, October 31, 1858, p. 43.

² *Ibid.*, October 31, 1858, p. 15.

³ *Ibid.*, *op. cit.*, p. 19.—"The great advantage of the machinery employed in brickmaking consists in this, that the employer is made entirely independent of skilled labourers." *Children's Employment Commission, Fifth Report*, London, 1866, p. 180, n. 46.—Mr. A. Sharrock, superintendent of the machine department of the Great Northern Railway, says, with regard to the building of locomotives, etc.: "Expensive English workmen are being less used every day. The production of the workshops of England is being increased by the use of improved tools, and these tools are again served by a low class of labour. . . . Formerly their skilled labour necessarily produced all the parts of engines. Now the parts of engines are produced by labour with less skill, but with good tools. By tools, I mean engineers' machinery, lathes, planing machines, drills, and so on." *Royal Commission on Railways*, London, 1867, *Minutes of Evidence*, no. 17,862 and 17,863.

⁴ *Ibid.*, *op. cit.*, p. 20.

⁵ *Ibid.*, *op. cit.*, p. 23.

⁶ *Ibid.*, *op. cit.*, p. 311.

thanks to the inherent comprehensiveness of mechanical means, and thanks to the continuous advance in technique, has been shown by the tremendous progress the system has made even under the pressure of the shortened working day. But who in 1860, the most successful year of the British cotton industry, would ever have dreamed of the lightning speed with which, during the next three years, under the spur of the American Civil War, machinery was to be improved in this industry, and hand labour correspondingly displaced? One or two examples, drawn from the reports of the inspectors of factories, will suffice to illustrate this point. A Manchester manufacturer states: "We formerly had 75 carding engines, now we have 12 doing the same quantity of work. . . . We are doing with fewer hands by 14, at a saving in wages of £10 a week. Our estimated saving in waste is about 10 % in the quantity of cotton consumed." Again: "In another fine-spinning mill in Manchester, I was informed that, through increased speed and the adoption of some self-acting processes, a reduction had been made, in number, of a fourth in one department, and of above half in another, and that the introduction of the combing machine in place of the second carding, had considerably reduced the number of hands formerly employed in the carding room." From another spinning mill comes an estimate that, 10 % of the "hands" have been saved. Messrs. Gilmour, Manchester spinners, state: "In our blowing-room department we consider our expense with new machinery is fully one-third less in wages and hands; . . . in the jack-frame and drawing-frame room, about one-third less in expense, and likewise one-third less in hands; in the spinning room about one-third less in expenses. But this is not all; when our yarn goes to the manufacturers, it is so much better by the application of our new machinery, that they will produce a greater quantity of cloth, and cheaper than from the yarn produced by old machinery." Mr. Redgrave further remarks in the same report: "The reduction of hands against increased production is, in fact, constantly taking place; in woollen mills the reduction commenced some time since, and is continuing; a few days since, the master of a school in the neighbourhood of Rochdale said to me, that the great falling off in the girls' school is not only caused by the distress, but by the changes of machinery in the woollen

¹ *Reports of Inspectors of Factories*, October 31, 1863, pp. 108-109.

mills, in consequence of which a reduction of seventy short-timers had taken place."¹

The table on page 466 shows the net result of the improvements of machinery in the English cotton industry that were the outcome of the American Civil War.

We see that between 1861 and 1868, no less than 338 cotton mills disappeared. In other words, more productive machinery, on a larger scale, was concentrated into the hands of a smaller number of capitalists. The number of power-looms declined by 20,663; but their product simultaneously increased, so that an improved power-loom was now giving a better yield than did the old one. Finally, the number of spindles increased by 2,622,521, whereas the number of workers employed diminished by 50,505. The "temporary" poverty from which the workers suffered owing to the cotton crisis was thus increased, and from being temporary was made permanent, by the rapid and continuous improvement in machinery.

But machinery does not merely function as a mighty competitor, ever ready to make the wage earners "superfluous". It is also a power directly hostile to the wage worker, is proclaimed to be such by capital, and is manipulated by capital in a sense hostile to the worker. It is utilised as the most powerful weapon in the capitalist arsenal, as the best means for overcoming the periodical revolts of the working class against the autocracy of capital.² According to

¹ *Reports of Inspectors of Factories*, October 31, 1863, p. 109.—The rapid improvement in machinery during the cotton crisis enabled the English factory owners to glut the world market almost immediately after the end of the American Civil War. During the last six months of 1866, textiles were almost unsaleable. Thereupon began the consignment of goods to China and India, which naturally made the glut worse. In the beginning of 1867, the factory owners had recourse to their customary expedient, and reduced wages by 5 %. The workers put up a fight, declaring [quite rightly, from the theoretical point of view] that the only way out of the difficulty was to work short time, to work only four days a week. After hokking out for a long while, the self-appointed captains of industry had to agree to work short time, in some places at the old rate of wages, and in others at a reduction of 5 %.

² "The relation of master and man in the blown-flint bottle trades amounts to a chronic strike." Hence the importation given to the manufacture of pressed glass, in which the chief operations are performed by machinery. A Newcastle firm which used to produce 350,000 lbs. of blown-flint glass, now produces instead, 3,000,500 lbs. of pressed glass. *Children's Employment Commission, Fourth Report*, 1863, pp. 202 and 213.

NUMBER OF FACTORIES.

	1878.	1881.	1888.
England and Wales ..	2,045	2,715	2,405
Scotland	152	163	131
Ireland	12	9	13
United Kingdom ..	2,210	2,887	2,549

NUMBER OF POWER-LOOMS.

	1878.	1881.	1888.
England and Wales ..	275,500	368,125	344,716
Scotland	21,604	30,110	31,864
Ireland	1,853	1,757	2,745
United Kingdom ..	298,957	399,992	379,325

NUMBER OF SPINDLES.

	1878.	1881.	1888.
England and Wales ..	25,826,576	29,352,132	30,478,228
Scotland	2,041,226	1,602,368	1,357,546
Ireland	150,322	152,944	124,240
United Kingdom ..	28,018,124	30,107,444	32,959,014

NUMBER OF FACTORY EMPLOYEES.

	1878.	1881.	1888.
England and Wales ..	341,570	407,598	357,052
Scotland	34,698	42,217	32,802
Ireland	3,345	2,734	4,203
United Kingdom ..	379,513	452,549	394,057

Gaskell, the steam-engine was from the very first an antagonist of human power, an antagonist that enabled the capitalist to offer a successful resistance to the growing claims of the workers, which were threatening to involve the commencing factory system in a crisis.¹ A whole book could be filled with the history of inventions since 1830, inventions which were made as weapons for capital to use against working-class revolts. Above all, this applies to the self-acting mule, which inaugurated a new epoch of the automatic system.²

In his evidence before the Trades Unions Commission, Nasmyth, the inventor of the steam-hammer, reported as follows, concerning the improvements in machinery which were made by him because of the widespread and long-lasting engineers' strike in 1851: "The characteristic feature of our modern mechanical improvements, is the introduction of self-acting tool machinery. What every mechanical workman has now to do, and what every boy can do, is not to work himself, but to superintend the beautiful labour of the machine. The whole class of workmen that depend exclusively on their skill is now done away with. Formerly I employed four boys to every mechanic. Thanks to these new mechanical combinations, I have reduced the number of grown-up men from 1500 to 750. The result was a considerable increase in my profits."

Ure says of a machine used in calico printing: "At length capitalists sought deliverance from this intolerable bondage³ in the resources of science, and were speedily reinstated in their legitimate rule, that of the head over the inferior members." Of an invention for dressing warps whose introduction had led to a strike, he says: "Then the combined malcontents, who fancied themselves impreguably entrenched behind the old lines of division of labour, found their flanks turned and their defences rendered useless by the new mechanical tactics, and were obliged to surrender at discretion." As to the invention of the self-acting mule,

¹ Gaskell, *The Manufacturing Population of England*, London, 1833, pp. 3-4.

² Some extremely important applications of machinery to machine building were made by Mr. Fairbairn because of strikes in his machine construction works.

³ Meaning, the terms of their contracts with the workmen, which to the capitalists seemed burdensome.

he writes: "A creation destined to restore order among the industrious classes. . . . This invention confirmed the great doctrine already propounded, that when capital enlists science into her service the refractory hand of labour will always be taught docility."² Although Ure's book was published in 1835, at a time when the factory system was still comparatively undeveloped, it remains the most classical expression of the factory spirit, not only in respect of its undisguised cynicism, but also in respect of the frankness with which it blunts out the witless contradictions of the capitalist brain. For instance, after developing the "doctrine" that capital, with the aid of the science it can hire, can always reduce the refractory hand of labour to docility, he writes indignant because physico-mechanical science "has been accused of lending itself to the rich capitalist as an instrument for harassing the poor". After preaching a long sermon to show how advantageous the rapid development of machinery is to the workers, he warns them that, by their refractoriness, their strikes, and so on, they are hastening the development of machinery. "Violent revulsions of this nature display shortsighted man in the contemptible character of a self-tormentor." Yet, only a few pages earlier, he had written the opposite: "Had it not been for the violent collisions and interruptions resulting from erroneous views among the factory operatives, the factory system would have been developed still more rapidly and beneficially for all concerned." Now comes the following exclamation: "Fortunately for the state of society in the cotton districts of Great Britain, the improvements of machinery are gradual." Improvement in machinery is wrongly "said to lower the rate of earnings of adults by displacing a portion of them, and thus rendering their number superabundant as compared with the demand for their labour. It certainly augments the demand for the labour of children, and increases the rate of their wages." On the other hand, the same cosider defends the lowness of children's wages on the ground that this prevents parents from sending their children at too early an age into the factory. The whole of his book is a vindication of a working day of unlimited length. His liberal soul is reminded of the darkest days of the Middle Ages when the legislature forbids that children of thirteen should be put to work for more

² Ure, *op. cit.*, pp. 368-370.

than twelve hours a day. Nevertheless, he calls upon the factory operative to thank providence, who, by means of machinery, has given them the leisure to think of their "immortal interests".¹

6. THEORY OF COMPENSATION AS REGARDS THE WORKPEOPLE DISPLACED BY MACHINERY.

Many bourgeois economists, such as James Mill, McCulloch, Torrens, Senior, John Stuart Mill, etc., maintain that, whenever machinery displaces workers, there is always and necessarily a simultaneous liberation of a sufficiency of capital for the employment of an equal number of workers.²

Suppose that a capitalist employs 100 workers at £30 per annum for each man—in a carpet manufactory let us say. The variable capital he expends each year will thus amount to £3000. Now let us suppose that he dismisses 50 workers and retains the remaining 50 at work with the aid of machinery which has cost him £1500. For the sake of simplicity, we will disregard the question of buildings, coal, etc. We will also assume that, alike before and after the introduction of the machinery, the cost of the raw material used each year amounts to £3000.³ Is not capital "set at liberty" by this transformation? Under the earlier way of carrying on the industry, the total sum of £6000 invested in the business was composed, one-half of constant, and one-half of variable capital. After the change, it consists of £4500 (£3000 for raw materials and £1500 for machinery) constant capital, and £1500 variable capital. The variable capital, the amount expended upon living labour power, now amounts to only one-fourth of the total capital instead of to one-half. Thus part of the capital, instead of being set free, is locked up in such a way that it ceases to be available for the purchase of labour power, so that variable capital has been transformed into constant capital. Other things being

¹ *Ure*, *op. cit.*, pp. 368, 7, 130, 182, 321, 181, and 475.

² Originally Ricardo held the same opinion; but after a time, with the scientific impartiality and love of truth characteristic of the man, he expressly renounced it. *Op. cit.*, ch. XXXI, "On Machinery".

³ The reader will please note that my illustration is entirely on the lines of those given by the above-mentioned economists.

equal, the capital of £6000 cannot henceforward employ more than 50 workers. With every improvement in the machinery, the number of workers employed diminishes. If the newly introduced machinery costs less than do the labour power and the implements displaced by it (let us say, only £1000 instead of £1500), then a variable capital amounting to £1000 will be transformed into constant capital, or locked up, whilst capital amounting to £500 will be set at liberty. This latter sum, assuming the yearly rate of wages to remain unchanged, will provide employment for about 16 workers, whereas 50 have been dismissed; indeed, for many fewer than 16 workers, inasmuch as, in order to be utilised as capital, a part of this £500 must now become constant capital, thus leaving only the remainder to be laid out upon labour power.

Even if we suppose that the making of the new machinery gives employment to a larger number of machinemakers, does this provide any compensation for the carpetmakers who have been paid off. At the best, its construction employs fewer persons than its use displaces. The sum of £1500, which formerly represented the wages of the now dismissed carpetmakers, has come to represent, in the form of machinery: 1, the value of the means of production used in the construction of that machinery; 2, the wages of the mechanics who made it; 3, the surplus value accruing to their "master". Further, once made, the machinery need not be renewed until it is worn out. If the more numerous mechanics are to be kept in constant employment, it will be necessary that, in one carpet factory after another, workers shall be replaced by machines.

As a matter of fact, the apologists are not referring to this sort of liberation of capital. What they have in mind is the means of subsistence of the dismissed workpeople. It cannot be denied that in the above instance the machinery does not merely set 50 workers at liberty, thus placing them at others' disposal; for it also cuts off their connexion with means of subsistence to the value of £1500, and thereby "sets at liberty" this amount of the means of subsistence. Thus the simple and familiar fact that machinery cuts off workers from the means of subsistence, signifies in economical parlance that machinery liberates means of subsistence for the worker, or transforms these means of subsistence into capital for his employment. You see that the mode of

expression is everything. We can disguise bad things by giving them good names.

According to this theory, means of subsistence to the value of £1500 was capital that was being expended by the labour of the 50 workers who have been discharged. The argument goes on to say that this capital is unemployed as soon as the 50 begin their enforced holiday, and cannot rest until it discovers a fresh "investment", in which the aforesaid 50 can once more consume it productively. Sooner or later, therefore, the capital and the worker must come together again, and then compensation has been effected. Consequently, according to this argument, the sufferings of the workers who are replaced by machinery are as fleeting as are the riches of this world.

But in relation to the discharged workers, the £1500 in means of subsistence was never really capital. What confronted them as capital was the sum of £1500 that has now been transformed into machinery. When we look into the matter more closely, we see that the £1500 represents nothing more than part of the carpets produced annually by the workers who have been dismissed, paid to them as wages by their employer in the form of money instead of in kind. With the carpets transformed into £1500, they bought means of subsistence to the same amount. The means of subsistence, therefore, did not exist for them in the form of capital, but in the form of commodities; and their own relation to these commodities was not that of wage workers, but simply that of purchasers. The fact that the machinery has "set them free" from the means of purchase, has transformed them from purchasers into non-purchasers. Hence there is a lessened demand for these commodities. That is all. If this lessened demand is not compensated by increased demand in other quarters, the market price of the commodities must fall. Should such a fall ensue for a long time and to a considerable extent, there will be a displacement of the workers engaged in the production of the commodities in question. Part of the capital which was previously devoted to the production of necessary means of subsistence, has to find some other form of reproduction. Thus during the fall in the market prices and the displacement of capital, the workers who are engaged in the production of necessary means of subsistence will also be "set free" from part of their wages. Instead, therefore, of proving that when

machinery frees the worker from his means of subsistence, it simultaneously converts these means into capital for his further employment, our apologists, with their sovereign law of supply and demand, have proved, conversely, that machinery throws workers on the streets, not only in that branch of production into which it is introduced, but also in branches into which it has not been introduced.

The real facts which the economic optimists travesty in the foregoing fashion are as follows. The workers, when driven out of the workshop by machinery, are forced into the labour market and there serve to increase the number of those who are already at the disposal of the capitalists for the purposes of exploitation. In Part Seven of the present work, when we come to discuss the accumulation of capital, we shall see that this effect of machinery, which by the apologists is presented as being a compensation for the working class, is, in reality, a most terrible scourge. For the present it is enough to say that the workers who are expelled from one branch of industry can certainly try to find employment in another. If they are successful in the search, if consequently the tie between them and the means of subsistence set free when they were discharged is renewed, the renewal of the tie is effected through the intermediation of some new superfluous capital seeking investment, and not in the least by the intermediation of the capital previously at work in their employment, for this capital has now been transformed into machinery. Even should they find employment, how poor are their prospects! Mutilated as they have been by the division of labour, these poor devils, when once removed from their old circle of occupation, are worth so little that they can only find access to one or two low-grade and therefore invariably overcrowded and underpaid branches of industry.* Furthermore, year by year, every

* One of Ricardo's followers, answering the stupidities of J. B. Say, remarks: "Where division of labour is well developed, the skill of the labourer is available only in that particular branch in which it has been acquired: he himself is a sort of machine. It does not therefore help matters one jot, to repeat in parrot fashion, that things have a tendency to find their level. On looking around us we cannot but see, that they are unable to find their level for a long time; and that when they do find it, the level is always lower than at the commencement of the process." *An Enquiry into those Principles respecting the Nature of Demand, etc.*, London, 1822, p. 72.

branch of industry attracts a new stream of workers, who supply the contingent which that branch needs in order to fill up vacancies and provide for expansion. As soon as machinery liberates some of the workers who have hitherto been employed in a particular branch of industry, the supplementary contingent is likewise redistributed, and absorbed in other branches of work; meanwhile, the original victims, during the period of transition, for the most part decay and perish.

It is an undoubted fact that machinery is not itself responsible for the "liberation" of the workers from the means of subsistence. It cheapens and increases the product in whatever branch it gets possession of, and for the time being has no effect on the mass of means of subsistence produced in other branches of industry. After its introduction, therefore, society has available the same amount of means of subsistence, if not more, for the displaced workers; quite irrespective of the enormous amount of the annual product squandered by non-workers. This is the central point of economist apologetics! For them, the contradictions and antagonisms inseparable from the capitalist use of machinery do not exist, because these contradictions and antagonisms do not grow out of machinery itself, but out of the capitalist use of machinery! Since, therefore, machinery considered in, and by itself, shortens the working day, whereas its capitalist use lengthens the working day; since machinery, by itself, lightens labour, whereas its capitalist use intensifies labour; by itself, it is a victory of man over the forces of nature, but, in its capitalist use, it subordinates man to the forces of nature; by itself, it increases the wealth of the producer, but, in its capitalist use, it impoverishes him; and so on—the bourgeois economist is content to declare that when we contemplate machinery in and by itself we see that all these obvious contradictions are mere seeming, for in themselves, and therefore also in economic theory, they are non-existent. He thus saves himself from having to outguess his brains any further, and imputes to his adversary the stupidity of attacking, not the capitalist use of machinery, but machinery itself.

Of course, the bourgeois economist does not attempt to deny that some temporary inconvenience may result to the displaced workers; but every medal has its obverse! He

simply cannot conceive of any other way of utilising machinery than the capitalist one. For him, consequently, exploitation of the worker by the machine is one and the same thing as exploitation of the machine by the worker. He therefore believes that anyone who tries to make him understand the real nature of the capitalist use of machinery, is opposed to the use of machinery at all, and is nothing but an adversary of social progress! The reasoning is worthy of Bill Sykes. "Gentlemen of the jury, no doubt the throat of this commercial traveller has been cut. But that is not my fault; it is the fault of the knife! Must we, because of such a temporary inconvenience, abolish the use of the knife? Bethink yourselves? Where would agriculture and handicraft be without knives? Is not the knife equally a source of healing in the hands of the surgeon, and a source of knowledge in the hands of the anatomist? Furthermore, is it not a willing help at the festive board? Should you abolish the knife, you would hurl us back into the depths of barbarism."¹

Although machinery necessarily displaces workers in the branches of industry into which it is introduced, it may none the less lead to an increase of employment in other branches of industry. But this effect has nothing to do with the so-called theory of compensation. Since every product of machinery, a yard of machine-woven textiles for instance, is cheaper than the otherwise identical hand product displaced by it, there follows as an absolute law: If the total amount of the machine-produced article remains identical with the total amount of handicraft-produced or manufacture-produced article it has displaced, then the total amount of labour employed in the production is

¹ One of the masters of this sort of protectionist blarney is McCulloch. Affecting the simplicity of a child of eight years old, he writes: "If it be advantageous to develop the skill of the workman more and more, so that he is capable of producing, with the same or with a less quantity of labour, a constantly increasing quantity of commodities, it must also be advantageous, that he should avail himself of the help of such machinery as will assist him most effectively in the attainment of this result." *Principles of Political Economy*, London, 1890, p. 166.

² "The discoverer of the spinning machine has raised India—though our workers are not seriously wrong thereby." A. Thiers, *De la propriété*.—Monsieur Thiers is confounding the spinning machine with the power-loom—though our writers are not seriously wrong thereby!

diminished. The increase in the amount of labour necessary for the production of the means of labour, such as machinery, coal, etc., must be less than the decrease in the amount of labour that results from the application of machinery. Were it otherwise, the product of machinery would be just as dear as, or dearer than, the product of hand work. But, in actual fact, the total quantity of machine-made articles produced by a lesser number of workers, does not remain the same as the total quantity that was formerly produced by hand work. In actual fact, there is a great increase in production. Let us suppose that 400,000 yards of machine-made textiles are produced by fewer workers than 100,000 yards of handloom textiles. In the product, which is four times as great, there is embodied four times as much raw material. The production of the raw material must, therefore, be multiplied fourfold. But as regards the instruments of labour, such as buildings, coal, machinery, etc., matters are different. The limit up to which the additional labour requisite for their production can increase, varies with the difference between the quantity of the machine-made article and the quantity of the same article that the same number of workers could make by hand.

Hence, in proportion as the use of machinery in any branch of industry increases, there ensues, to begin with, an increase of production in the other branches that supply our branch with the means of production. To what extent there results an increase in the number of workers employed, will depend (assuming the working day and the intensity of labour to remain unchanged) upon the composition of the capital employed, that is to say upon the ratio between its constant and variable components. This ratio, in turn, varies greatly with the extent to which machinery has been introduced or is being introduced into the industries in question. The number of men condemned to work in coal and metal mines increased enormously owing to the advance in British machineducture, although the growth in the number of miners employed has been less rapid during recent decades, owing to the use of new machinery in the mines.¹ When machinery is born, a new kind of labour is

¹ According to the census of 1861 (vol. II, London, 1863), the number of workmen employed in the collieries of England and Wales was 246,803, of whom 71,323 were under twenty, and 175,067 over twenty years of age. Under the former head come 435 persons

born with it, the labour of those who produce machinery. We already know that manufactures is being more and ever more extensively developed in this particular branch of production.¹ As regards the raw material,² there can be no doubt whatever that the stupendous advance in cotton spinning led to a forcing-house extension of the cotton plantations in the United States, thus stimulating, not only the African slave trade, but also the breeding of negroes, which became one of the main industries of the border slave States. In 1790, when a census of the slaves was first taken in the United States, they numbered 607,000. By 1861, they numbered about 4,000,000. On the other hand, it is no less certain that the rise of the mechanical production of woollen textiles was attended by the progressive transformation of arable land into pastures for sheep, resulting in the large-scale driving of agricultural workers off the land—workers who had now become "superfluous". At the time of writing, Ireland is still being subjected to this process. During the twenty years since 1845, its population has been reduced by nearly one-half, and a further reduction is in progress, in order that the population may be lowered to the level which will best suit the Irish landlords and the British owners of woollen textile factories.

When machinery is applied to any of the preliminary or intermediate stages through which the object of labour has to pass on its way to completion, there is an increased yield of material in those stages, and therewith we have an increased demand for labour in the handicrafts or manu-

ranging from five to ten years of age, 30,701 ranging from ten to fifteen years of age, and 40,000 ranging from fifteen to nineteen years of age. The number of workmen employed in iron, copper, lead, zinc, and all other metal mines, amounted to 305,222.

¹ In the year 1861, the number of persons employed in England and Wales upon the production of machinery was 60,807, this figure including the factory owners and their clerks, etc.—and also all the agents and traders occupied in this branch. But the foregoing figures do not include the producers of such small machines as sewing machines and the like; nor yet the producers of tools used in the working machines, such as spindles, etc. The total number of civil engineers was 3339.

² Since, in this connection, iron is one of the most important raw materials, I may mention that in England and Wales, in the year 1861, there were 123,771 operative iron founders, of whom 123,430 were males, and 341 females. Of the males, 30,810 were under twenty, and 92,600 were over twenty years of age.

facture supplied by the produce of the machines. Spinning by machinery, for instance, supplied yarn so cheaply and so abundantly, that at first the handloom weavers were able to work full time without increased outlay. Their earnings consequently rose.¹ Hence there was a flow of workers into the cotton-weaving industry, until, at last, the 800,000 cotton weavers whom the jenny, the throstle, and the mule had called into existence in England, were displaced by the power-loom. Thus, in like manner, owing to the abundance of machine-made cloth, the number of tailors, sempstresses, etc., continued to increase until the sewing machine was invented.

In proportion as raw materials, intermediate products, the instruments of labour, etc., increase in quantity, being produced by machinofacture with the aid of a comparatively small amount of labour, the elaboration of such raw materials and intermediate products becomes split up into numberless branches, this meaning that the social branches of production become more manifold. Machinofacture carries the social division of labour enormously farther than manufacture did, for it increases to a far greater extent the productivity of the industries it invades than manufacture did.

The immediate effect of machinery is to increase surplus value, and at the same time to increase the mass of products in which surplus value is embodied. Thus, besides increasing the substance upon which the capitalist class and its hangers-on live, it greatly enlarges these social strata. Their increasing wealth, and the fact that a comparatively smaller number of workmen is now required to produce the necessities of life, lead, on the one hand, to the rise of new and luxurious wants, and, on the other hand, to the appearance of means for the satisfaction of these wants. A greater part of the social product becomes metamorphosed into surplus product, and a greater part of the surplus product is reproduced and consumed in more sophisticated and diversified ways. In other words, there is an increase in the

¹ "A family of four grown-up persons with two children as widows earned at the end of the last, and the beginning of the present century, by ten hours' daily labour, £4 a week. If the work was very pressing they could save more. . . . Before that, they had always suffered from a deficient supply of yarn." Gaskell, *op. cit.*, pp. 23-27.

production of luxuries.* A sophistication and diversification of the products likewise results from the new relations in the world market that are created by large-scale industry. Not only are larger quantities of foreign articles of luxury exchanged for home products; but, in addition, more foreign raw materials, ingredients, and intermediate products are used as means of production in home industries. Owing to these new conditions in the world market, there is an increased demand for labour in the transport industry, which splits up into numerous sub-branches.[†]

An increased demand for the means of production and the means of subsistence, in conjunction with a relative decline in the number of workers, leads to an extension of labour in departments of industry whose products, such as canals, docks, tunnels, bridges, etc., can only bear fruit in a distant future. There arise, either directly on the basis of machinery, or else as the outcome of the general industrial revolution brought about by machinery, entirely new branches of production, and consequently new fields of work. But the share which these take in the total production is far from being an important one, even in the most highly developed countries. The number of the workers engaged in them is directly proportional to the demand which they create for the crudest sorts of manual labour. The chief industries of this kind at the present day are gasworks, telegraphy, photography, steam navigation and railways. In England and Wales, according to the census of 1861, there were employed in the gas industry (gasworks, the production of the necessary mechanical appliances, the agents of the gas companies, etc.), 15,211 persons; in telegraphs, 2,599; in photography, 2,566; in the steamship service, 3,570; and in railways, 70,599, among whom the more or less permanently employed "unskilled" navvies, and the whole administrative and clerical staff, comprised 28,000 persons. Thus the total of individuals engaged in these five new industries is 94,545.

Lastly, owing to the amazing increase of productivity in the domain of large-scale industry (accompanied, as it is,

* F. Engels, in his *Lage*, etc., shows how pitiful is the condition of many of these workers who are engaged in the production of luxuries. Much additional information on this matter will be found in the reports of the *Children's Employment Commission*.

† In the year 1861, there were employed in the mercantile marine in England and Wales 94,665 persons.

by a more intensive and extensive exploitation of labour power in all other spheres of production), it is possible for a continually increasing proportion of the working class to be utilised for unproductive purposes, so that there is a reproduction, on a continually increasing scale, of the domestic slave class of old days, now termed "servants", who are of both sexes. According to the 1861 census, the total population of England and Wales was 20,066,244 persons, of whom 9,776,259 were males and 10,289,985 were females. If we subtract from these numbers all who are too old or too young to work; all "unproductive" women, young persons, and children; the persons engaged in "ideological" occupations, such as government officials, parsons, lawyers, soldiers, and the like; all whose only occupation it is to consume other's labour in the form of land-rent, interest, etc.; and, finally, paupers, vagabonds, criminals, etc.—there remain, in round figures, 8,000,000 persons of both sexes and various ages, inclusive of the capitalists actively engaged in productive trade, commerce, finance, and so on. Among these 8,000,000 there are:

	Persons.
Agricultural labourers (including shepherds, farmservants, and maidservants living in the houses of farmers)	1,098,261
All who are employed in cotton, woollen, worsted, flax, hemp, silk, and jute factories, and in stockingmaking and lace-making by machinery	642,607 ¹
All who are employed in coalmines and metal mines	365,835
All who are employed in metal works (blast furnaces, rolling mills, etc.), and metal manufactures of all kinds	356,998 ²
The servant class	1,208,648 ³

¹ Of these, only 177,328 are males above 13 years of age.

² Of these, 30,000 are females.

³ Of these, 137,447 are males. The figure 1,208,648 does not include persons who do not serve in private houses.—Between 1861 and 1870, the number of maidservants was almost doubled, the figure of these given in the 1871 census being 267,671. In the year 1847, there were 2624 gamblers, and in 1869, there were 2921.—The young servant girls in the houses of the London middle class are in common parlance known as "sluveys".

All the persons employed in textile factories and in mines taken together number 1,208,442; those employed in textile factories and metal industries taken together number 1,019,605—in either case less than the number of modern domestic slaves. What an edifying result of the capitalist exploitation of machinery!

7. REPULSION AND ATTRACTION OF THE WORKERS BY THE FACTORY SYSTEM. CRISIS IN THE COTTON TRADE.

All political economists of any standing admit that the introduction of machinery has a devastating effect upon the workers in the old handicrafts and manufactures with which this machinery first comes into competition. With few exceptions, they deplore the slavery of the factory operatives. But what is their trump card! They declare that machinery, after the reign of terror characteristic of the period of its introduction and expansion, serves, in the last resort, to increase the number of the labour slaves, instead of diminishing it! Yes, political economy is delighted to put forward the hideous theory (hideous to the "philanthropically inclined," even if they believe that the capitalist method of production is foreordained to endure for ever and a day) that, after a period of growth, after a shorter or longer "phase of transition", the factory, based upon machine production, and arrived at its fullest maturity, is able to fleece more workers than it originally threw into the street!¹

¹ Guizot, however, considers that the final result of machine-factory is to bring about an absolute decrease in the number of the labour slaves, at whose expense an increased number of what he calls "honest folk" will then be able to live, and to develop their famous "perfectible perfectibility". Little as he understands the movement of production, he feels, at any rate, that machinery must be a disastrous institution if its introduction transforms employed workers into paupers, what time its evolution brings to life more labour slaves than it has slaughtered. The idiocy of his outlook cannot be fully expressed except in his own words: "The classes condemned to produce and to consume, diminish; and the classes which direct labour, which comfort, console and enlighten the whole population, multiply, . . . and appropriate all the advantages which result from the reduction in the cost of labour, from the abundance of products, and from the cheapness of articles of consumption. In this direction, the human species rises to the highest conceptions of genius, penetrates the mysterious depths of religion, establishes the salutary principles of morality" (those in accordance

It is true that in certain cases, as in that of the English worsted and silk factories, we find that, in a particular phase of development, an extraordinarily great extension of factories may be accompanied, not merely by a relative, but by an absolute decrease in the number of workers employed. In the year 1860, when parliament ordered a special census of all factories in the United Kingdom, Factory Inspector R. Baker reported that in his district, which comprised Lancashire, Cheshire, and Yorkshire, there were 632 factories. In 570 of these, there were: power-looms, 85,622; spindles (inclusive of doubling spindles), 14,819,146; steam-power, 27,439 h.p.; water-power, 1390 h.p.; occupied persons, 94,129. In the year 1863, in the same factories, there were: power-looms, 95,163; spindles, 7,023,031; steam-power, 28,925 h.p.; water-power, 1445 h.p.; occupied persons, 88,913. Thus, between 1860 and 1863 in these factories, the falling off in the number of power-looms was 11 %; in that of spindles 3 %; in that of steam-power 5 %; while there was a simultaneous decline of 5.5 % in the number of persons employed.³

Between 1852 and 1862, there was a great expansion in woollen manufacture in England, while the number of workers employed remained almost stationary. This showed to how great an extent the introduction of new machinery had replaced the labour of an earlier phase.⁴ In certain with which the laissez classes "appropriate all the advantages, etc.") "the tutelage laws of liberty" (presumably the liberty in accordance with which certain classes are "condemned to produce") "and of power, obedience, justice, duty, and humanity". The foregoing (saddle will be found in *Des systèmes d'économie politique*, etc., second edition, Paris, 1881, vol. II, p. 214. See also p. 212.

³ *Reports of Inspectors of Factories*, October 31, 1863, pp. 38 et seq. —But at the same time, means for the employment of an increasing number of workers were already in existence in the shape of 100 new factories, with 11,623 power-looms, 608,756 spindles, and 2695 h.p. (steam-power and water-power). (*Ibid.*)

⁴ *Reports of Inspectors of Factories*, October 31, 1862, p. 79.—In the end of December 1872, Factory Inspector A. Rodgrave, lecturing at Bradford in the New Mechanics Institution, said: "What has struck me for some time past is the altered appearance of the woollen factories. Formerly they were filled with women and children, now machinery seems to do all the work. At my asking for an explanation of this from a manufacturer, he gave me the following: 'Under the old system I employed 64 persons; after the introduction of improved machinery I reduced my hands to 33, and lately, in consequence of new and extensive alterations, I have been in a position to reduce these 33 to 13.'"

cases, an increase in the number of factory operatives is only apparent, not being due to the extension of the factories already established, but to the gradual annexation of subsidiary branches of the industry. For instance: "The increase in power-looms, and in the hands employed by them between 1838 and 1856, was, in the [British] cotton trade, simply owing to the extension of this branch of industry; but in other trades to the application of steam-power to the carpet loom, to the ribbon loom, and to the linen loom, which previously had been worked by the power of men."¹ Hence the increase in the number of factory operatives in these instances was merely an expression of a diminution in the total number employed. Finally, the foregoing statistical statements ignore the fact that everywhere, except in the metal industries, young persons (under eighteen), women, and children, form the preponderating elements in this class of factory operatives.

It will readily be understood, however, that, although masses of workers are displaced and virtually replaced by the introduction of machine methods of production, the factory operatives may in the end, thanks to the building of more mills or to the extension of old ones in a given industry, become more numerous than were the manufacturing operatives or handicraftsmen originally displaced by the machinery. Suppose, for instance, that in the old method of production a capital of £500 is utilised weekly, and that two-fifths of this sum are constant capital, while three-fifths are variable capital, this signifying that £300 are laid out upon means of production, and £200 (say £1 per man) upon labour power. When machinery is introduced, the composition of the total capital is modified. Now let us suppose that four-fifths of it are constant capital and that one-fifth is variable capital, this meaning that only £200 are expended on labour power. Two-thirds of the formerly occupied workers have, therefore, been dismissed. If this factory enterprise extends, so that, the other conditions remaining the same, the total capital utilised rises from £500 to £1500, there will now again be 300 operatives employed, just as there were before the industrial revolution. If the amount of capital utilised undergoes a further increase to £2000, there will then be 400 operatives employed, this being one-third more than under the original method of production.

¹ *Reports of Inspectors of Factories*, October 31, 1856, p. 16.

There has been an absolute increase of 100 in the number of operatives employed; but relatively, this meaning in proportion to the total capital advanced, their number has diminished by 800, for under the old method of production a capital of £2000 would have given employment to 1200 operatives instead of 400. Thus a relative decline in the number of operatives employed is compatible with an absolute increase in that number. We assumed above that, while the total capital increases, its composition remains constant because there is no change in the conditions of production. We have already learned, however, that, with every advance in the methods of machine production, the constant component of capital (the part which consists of machinery, raw materials, etc.) increases, whereas the variable component of capital (the part expended upon labour power) diminishes. We know, likewise, that in no other system of production are improvements so continuous, and the composition of the total capital subject to such rapid changes, as in the factory system. These changes, however, are punctuated by periods of rest, during which there is no change other than a quantitative extension upon the extant technical basis. In such periods, the number of workers employed increases. Thus, in 1835, the total number of operatives in the cotton, worsted, flax, and silk factories in the United Kingdom was only 354,684; whereas in 1861 the number of the power-loom weavers alone (of both sexes, and of all ages from eight years upwards) amounted to 230,654. Certainly this growth seems less considerable when we remember that in 1838 the British handloom weavers, including the members of their families who were at work with them, still numbered 800,000¹—to say nothing of the handloom weavers in Asia and upon the European continent who were displaced by the introduction of the power-loom.

In the few additional remarks I have to make on this point, I shall refer to some concrete conditions which have

¹ "The sufferings of the handloom weavers were the subject of an enquiry by a Royal Commission, but although their distress was acknowledged and lamented, the amelioration of their condition was left, and probably necessarily so, to the chances and changes of time, which it may now be hoped" (twenty years later!) "have nearly obliterated those miseries, and not improbably by the present great extension of the power-loom." *Reports of Inspectors of Factories*, October 31, 1856, p. 13.

hitherto remained outside the scope of our theoretical presentation of the topic.

As long as manufactures is extending in any branch of industry at the expense of the old-time handicraft or manufacturing system, its victorious progress is no less certain than is the victorious progress of an army equipped with modern breech-loading rifles when matched against an army equipped only with bows and arrows. This opening period, in which the machine is achieving the conquest of its sphere of activity, is of decisive importance owing to the extraordinarily high profits which can be made at such a time. These profits do not only form a source of accelerated accumulation; for they also attract into the favoured sphere of production a large part of the additional social capital which is constantly being created, and is ever on the lookout for new investments. The peculiar advantages of this opening period of storm and stress are continually being renewed in the branches of production into which machinery is freshly introduced. But as soon as the factory system has attained a fair measure of extension, and has reached a certain maturity, as soon, that is to say, as its own technical basis (machinery) is being produced by machines, as soon as the extraction of coal and iron, together with the elaboration of metals and the transport system, have been revolutionised—as soon, in a word, as the general productive conditions appropriate to large-scale industry have been established—this method of production acquires an elasticity, a capacity for sudden extension by leaps and bounds, which knows no limits other than those imposed by the supply of raw materials and by the capacity of the market. But machinery itself is competent to bring about a direct increase in the supply of raw materials; as happened, when, for example, the invention of the cotton gin led to an increase in the production of raw cotton.¹ On the other hand, the cheapness of machine-made products, and the revolution in the methods of transport and communication, become weapons for the conquest of foreign markets. By ruining handicraft production in other countries, machinery forcibly converts them into fields for the supply of its raw material. Thus the East Indies have been compelled to undertake the production of cotton, wool, hemp, jute,

¹ Other ways in which machinery can affect the production of raw materials will be described in Book Three.

indigo, etc., for Great Britain.¹ Inasmuch as, in the countries where large-scale industry becomes established, numbers of the workers become "superfluous," the development of manufacture promotes extensive emigration and the colonising of foreign countries, which become nurseries for the production of raw materials required by the mother country. In this way, Australia, for instance, has become a nursery for the production of wool.² There now arises a new international division of labour, so that, while parts of the world become the main seats of manufacture, other parts are transformed into predominantly agricultural fields of production. This revolution is associated with revolutionary changes in agriculture which need not be further considered in this place.³

¹ *Export of Cotton from India to Great Britain.*

1846 34,340,143 lbs. 1860 204,142,168 lbs. 1865 445,247,500 lbs.

Export of Wool from India to Great Britain.

1846 4,370,581 lbs. 1860 20,214,173 lbs. 1865 20,679,111 lbs.

² *Export of Wool from the Cape to Great Britain.*

1846 1,258,436 lbs. 1860 16,374,345 lbs. 1865 22,920,603 lbs.

Export of Wool from Australia to Great Britain.

1846 21,780,346 lbs. 1860 52,166,666 lbs. 1865 109,734,266 lbs.

³ The economic development of the United States is itself a product of European large-scale industry, and more particularly of English large-scale industry. To-day [in 1865], the United States must still be regarded, economically speaking, as a European colony.—(Since then, the United States has risen to the second rank among the industrial countries of the world, without for that reason completely forfaking its colonial characteristics.—Note added by Engels to the fourth edition.)

Export of Cotton from the United States to Great Britain.

1846 408,363,393 lbs. 1862 765,490,543 lbs.

1859 940,707,264 lbs. 1860 1,115,490,566 lbs.

Export of Grain, etc., from the United States to Great Britain.

In 1861.

1850. 1860.

Wheat 26,202,312 41,033,303

Barley 3,582,653 6,624,800

Oats 3,174,801 4,426,994

Rye 384,740 7,128

Flour 3,819,440 7,207,223

Buckwheat 1,056 19,372

Maize 5,473,161 11,694,868

Beans or Hogg (a sort of Barley) 2,000 7,873

Pears 811,600 1,014,712

Beans 1,822,672 2,037,137

Total 34,563,861 74,083,351

On the motion of Mr. Gladstone, on February 17, 1867, the House of Commons ordered a return of the total quantities of grain, corn, and flour of all sorts, imported into and exported from the United Kingdom between the years 1831 and 1866. I give on page 487 a summary of the result. The flour is reduced to quarters of corn.

The enormous extensibility of the factory system, the way in which it increases production by leaps and bounds, and its dependence upon the world market, necessarily give a febrile impetus to production, with a glutting of the markets, a subsequent relative inadequacy of demand, and therefore a paralysis of industry. The life of industry becomes one characterised by a succession of periods of moderate activity, prosperity, overproduction, crisis, and stagnation. Thanks to this periodicity of the industrial cycle, the uncertainty and instability which manufactures impose upon the occupation of the worker, and therefore upon the general conditions of his life, now become habitual features. Except in the periods of prosperity, the capitalists are always fiercely competing one with another for a place in the market. The size of each one's share is directly proportional to the cheapness of his product. This need for cheapness causes rivalry among the capitalists in the use of improved machinery able to replace labour power, and in the application of new methods of production. Furthermore, there always arrives a moment when the attempt is made to cheapen commodities still more by forcing wages down below the value of labour power.¹

¹ In July 1834, the Leicester shoemakers, who had been locked out, made an appeal to the Trade Societies of England, from which I quote the following: "Twenty years ago the Leicester shoe trade was revolutionised by the introduction of riveting in the place of stitching. At that time good wages could be earned. Great competition was shown between the different firms as to which could turn out the cheapest article. Shortly afterwards, however, a worse kind of competition sprang up, namely, that of underselling one another in the market. The injurious consequences soon manifested themselves in reductions of wages, and so sweeping was the fall in the price of labour, that many firms now pay only one-half of the original wages. And yet, though wages sink lower and lower, profits appear, with each alteration in the scale of wages, to increase."—Even bad times are turned to account by the factory owners in order to make exceptional profits by lowering wages to an extreme, that is to say by a direct theft of the workers' means of subsistence. Let me give an example. The passage I am about to quote relates to the crisis in the silk-weaving trade at Coventry. "From information

QUINQUENNIAL PERIODS AND THE YEAR 1958

Annual Average			1951-55	1956-60	1961-65	1966-70
Import	..	..	1,098,375	1,985,737	2,843,365	2,795,556
Export	..	..	223,555	931,739	1,391,596	1,334,681
Excess of import over export	..	..	874,820	1,053,997	1,451,769	1,460,875
Population						
Yearly average in each period	..	..	24,622,107	25,000,397	27,268,569	27,797,566
Average quantity of corn, etc., in qrs., consumed annually per head over and above the home produce consumed	..	..	0.036	0.042	0.047	0.049
Annual Average			1951-55	1956-60	1961-65	1966-70
Import	..	..	2,543,237	10,012,612	13,000,871	16,437,349
Export	..	..	907,491	345,139	302,334	216,228
Excess of import over export	..	..	1,635,746	9,667,473	12,698,537	16,221,121
Population						
Yearly average in each period	..	..	27,878,983	28,391,344	29,381,460	29,833,484
Average quantity of corn, etc., in qrs., consumed annually per head over and above the home produce consumed	..	..	0.051	0.337	0.433	0.543

An increase in the number of factory workers is also brought about by a proportionally much more rapid increase in the total amount of capital invested in factories. But this process goes on only within the ebb and flow periods of the industrial cycle. It is, moreover, continually interrupted by technical advances which sometimes replace the workers virtually, and sometimes actually drive them out of the factory. These qualitative changes in machine production are continually expelling workers from the factory, or shutting the factory door against the stream of new recruits; whereas a purely quantitative extension of the factories leads to the enrolment of fresh contingents, this process going on side by side with the expulsion of others. Thus the workers are insistently being repelled and attracted, hustled from pillar to post; and at the same time there are unceasing changes in the sex, age, and skill of the levies.

We shall best be enabled to visualise the destiny of the factory worker if we take a rapid survey of what has happened in the English cotton industry.

From 1770 to 1815, the cotton industry in England was depressed or stagnant for only five years. During this first period of forty-five years, the English factory owners held the monopoly of machinery and of the world market. From 1815 to 1821, the industry was depressed; in 1822 and 1823, it was prosperous; in 1824, the Combination Laws were repealed, and there was a general extension of the factory system; in 1825, there was a crisis; in 1826, widespread poverty and riots among the cotton operatives; in 1827, moderate improvement; in 1828, a great increase in

I have received from manufacturers as well as workmen, there seems to be no doubt that wages have been reduced to a greater extent than either the competition of the foreign producers or other circumstances have rendered necessary. . . . The majority of weavers are working at a reduction of 30 to 40 % in their wages. A piece of ribbon for making which the weaver got 6s. or 7s. five years back, now only brings them 3s. 3d. or 3s. 6d.; other work is now priced at 2s. and 2s. 3d. which was formerly priced at 4s. and 4s. 3d. The reduction in wage seems to have been carried to a greater extent than is necessary for increasing demand. Indeed, the reduction in the cost of weaving, in the case of many descriptions of ribbons, has not been accompanied by any corresponding reduction in the selling price of the manufactured article." Mr. F. D. Lange's report, *Children's Employment Commission, Fifth Report, 1896*, p. 114, B. T.

the use of power-looms, and in export; in 1829, export was enormously developed, the exports, especially to India, exceeding those of all previous years; in 1830, glutted markets, widespread poverty; from 1831 to 1833, continued depression. At this time, the trade to the Middle and Farther East (India and China) was withdrawn from the monopoly of the East India Company. In 1834, there was a great extension of factories and in the use of machinery, and a scarcity of labour. The new Poor Law promoted the immigration of rural workers into the factory districts. Children were brought in large numbers from the agricultural counties into the towns—a white-slave trade. The year 1835 was an extremely prosperous one, but at the same time the handloom cotton weavers were starving. In 1836, there was still great prosperity. In 1837 and 1838, depression prevailed, and there was a crisis. In 1839, a revival. In 1840, great depression, riots, the soldiers had to be called out. In 1841 and 1842, the factory operatives suffered terribly. In 1842, the factory owners locked out the operatives in order to enforce a repeal of the Corn Laws. Many thousands of the operatives streamed into the towns of Lancashire and Yorkshire, were driven back by the military, and their leaders were brought to trial in Lancaster. In 1843, there was widespread poverty. In 1844, a revival. In 1845, great prosperity. In the early part of 1846, prosperity continued, then there were signs of a reaction. Now the Corn Laws were repealed. In 1847, there was a crisis. There was a general reduction of wages by 10 % or more, in honour of the "big loaf". In 1848, continued depression; Manchester was under military protection. In 1849, a revival. In 1850, prosperity. In 1851, fall in prices, low wages, frequent strikes. In 1852, commencing improvement, continuance of strikes, the factory owners threatened to import foreign workers. In 1853, increasing export. An eight-months' strike and widespread poverty in Preston. In 1854, prosperity, glutted markets. In 1855, reports of bankruptcies streamed in from the United States, Canada, and the Eastern Asiatic markets. In 1856, great prosperity. In 1857, a crisis. In 1858, improvement. In 1859, great prosperity and an increase in factories. In 1860, the zenith of the English cotton industry. The Indian, Australian, and other markets, were glutted to such an extent that the stocks now produced had not been fully absorbed even by 1863. Com-

mmercial treaty with France. An enormous expansion in factories and machinery. In 1861, the period of expansion continued for a time, then came a slump, the American Civil War, and a scarcity of raw cotton. From 1862 to 1863, the collapse was complete.

The history of the cotton famine is so characteristic that we must dwell upon the matter for a moment. A study of the conditions of the world market in 1860 and 1861 shows that the cotton famine did not come amiss to the factory owners, and was to some extent positively advantageous to them. This was admitted in the reports of the Manchester Chamber of Commerce; it was proclaimed in parliament by Palmerston and Derby; and events have confirmed the view.¹ No doubt among the 1887 cotton mills that existed in the United Kingdom in the year 1862, there were many of a very small size. According to the report of Factory Inspector A. Redgrave, whose inspection district included 2709 of these 1887 factories, 392 of them, or 19 %, were run with a horse-power of less than 10 each; 345, or 16 %, with a horse-power of over 10 and under 20; 1372, with a horse-power of more than 20.² The majority of the smaller factories were no more than weaving sheds, built during the boom of 1858 and subsequent years. They had been established, mainly by speculators, one of whom supplied the yarn, another the machinery, a third the buildings; and they were worked by men who had been overlookers, or by other persons of small means. Most of these little factories came to grief. The same fate would have overtaken them in the commercial crisis which was only stayed off by the cotton famine. Although they formed one-third of the total number of factories, the amount of capital invested in them was very small as compared with the total amount of capital invested in the cotton industry. As to the general extent of the stoppage, authentic estimates show that in October 1862, of the spindles 60·3 %, and of the looms 58 %, were idle. These figures relate to the industry as a whole, and must, of course, be much modified if we are dealing with particular districts. Very few of the factories were working full time (50 hours per week); most of them were running short time. Even for the comparatively small number of workers who were employed full time and at

¹ Cf. *Reports of Inspectors of Factories*, October 31, 1862, p. 30.

² *Ibid.*, p. 19.

the ordinary piece-work rates, the weekly wages were necessarily diminished owing to the substitution of bad cotton for good, the replacement of Sea Island by Egyptian for fine-spinning mills, of American and Egyptian by Surat (Eastern India), and of pure cotton by mixtures of cotton waste with Surat. The shorter fibres of the Surat cotton and its dirty condition, the greater fragility of the thread, the substitution of all kinds of heavy ingredients for flour in sizing the warps—all these lessened the speed of the machinery, or the number of looms that one weaver could superintend; increased the labour caused by defects in the machinery; and reduced the piece-wage by reducing productivity. Workers occupied full time, and using Surat as raw material, lost 20 %, 30 %, and more. But most of the factory owners reduced the piece-work rate by 5 %, 7½ %, or 10 %. The condition of workers who were employed only 3, 3½, or 4 days a week, or only 6 hours a day, can readily be understood. After a comparative improvement had set in, in 1863, many weavers, spinners, etc., could earn no more than a weekly wage of 3s. 4d., 3s. 10d., 4s. 6d., 5s. 1d., etc.¹ Even when the conditions prevailing among the workers were thus pitiable, the factory owners were still exercising their inventive powers upon the reduction of wages. The possibility of reduction hung over the head of the worker as a punishment for the inferior quality of the finished article, although this falling-off in quality was due to the badness of the raw material, the use of unsuitable machinery, and so on. When the factory owner was also the worker's landlord, he paid himself his rent by deducting the amount from these paltry wages. Factory Inspector Redgrave tells us of self-acting minders (operatives who manage a pair of self-acting mules) "earning at the end of a fortnight's full work 8s. 11d., and that from this sum was deducted the rent of the house, the manufacturer, however, returning half the rent as a gift. The minders took away the sum of 6s. 11d. In many places the self-acting minders ranged from 5s. to 9s. per week, and the weavers from 2s. to 6s. per week, during the latter part of 1862."² Even when the operatives were working short time, the rent was frequently deducted from their wages.³ We need hardly be surprised, then, that in certain parts of Lancashire

¹ *Reports of Inspectors of Factories*, October 31, 1863, pp. 41-43.

² *Ibid.*, October 31, 1863, pp. 41-42.

³ *Ibid.*, p. 51.

a kind of famine fever became epidemic. Still more characteristic, however, was the revolution that occurred in the process of production at the cost of the workpeople. Experiments were made upon their bodies, like the experiments which physiologists make upon frogs. Mr. Radgrave writes: "Although I have given the actual earnings of the operatives in the several mills, it does not follow that they earn the same amount week by week. The operatives are subject to great fluctuation from the constant experimenting of the manufacturers. . . . The earnings of the operatives rise and fall with the quality of the cotton mixings; sometimes they have been within 15 % of former earnings, and then, in a week or two, they have fallen off from 50 to 60 %." These experiments were not made solely at the cost of the worker's means of subsistence. He had to pay a forfeit in all his five senses as well. "The people who are employed in making up Surat cotton complain very much. They inform me, on opening the bales of cotton there is an intolerable smell, which causes sickness. . . . In the minding, scribbling, and carding rooms, the dust and dirt which are disengaged, irritate the air passages and give rise to cough and difficulty of breathing. A disease of the skin, no doubt from the irritation of the dirt contained in the Surat cotton, also prevails. . . . The fibre being so short, a great amount of size, both animal and vegetable, is used. . . . Bronchitis is more prevalent owing to the dust. Inflammatory sore throat is common, from the same cause. Sickness and dyspepsia are produced by the frequent breaking of the weft when the weaver sucks the weft through the eye of the shuttle."¹ On the other hand, the use of heavy substitutes for flour proved a Fortunatus' purse for the worthy factory owners, who were able thereby to increase the weight of the yarn. Thus "15 lbs. of raw material, when woven, would weigh 26 lbs." In the *Reports of Inspectors of Factories*, April 30, 1864, we read: "The trade is availing itself of this measure at present to an extent which is even discreditable. I have heard on good authority of a cloth weighing 8 lbs. which was made of 5½ lbs. cotton and 2½ lbs. size; and of another cloth weighing 5½ lbs., of which 2 lbs. was size. These were ordinary export shirtings. In cloths of other descriptions, as much as 50 % size is sometimes added; so

¹ *Reports of Inspectors of Factories*, October 31, 1863, pp. 30-31.

² *Ibid.*, pp. 62-63.

that a manufacturer may, and does truly boast that he is getting rich by selling cloth for less money per lb. than he paid for the mere yarn of which they are composed."¹ But the workers had other things to endure, besides the experiments made by the factory owners inside the mills, and those made by the municipalities outside them; worse evils than those which took the form of low wages or total lack of work, want and charity, the unctuous speeches of Lords and Commons. "Unfortunate females who, in consequence of the cotton famine, were at its commencement thrown out of employment, and have thereby become outcasts of society; and now, though trade has revived and work is plentiful, continue members of that unfortunate class, and are likely to continue so. There are also in the borough more youthful prostitutes than I have known for the last twenty-five years."²

Thus we find that during the first forty-five years of the British cotton industry, from 1770 to 1815, there were only five years of crisis and stagnation, but we remember that this was the period when the British cotton trade held a world monopoly. The second period, from 1815 to 1863, comprising forty-eight years in all, contains only twenty years of reviving trade and prosperity as contrasted with twenty-eight years of depression and stagnation. During the fifteen years from 1815 to 1830, continental Europe and the United States began to compete with England. Since 1833, the extension of the Asiatic markets has been enforced by the wholesale extinction of the Indian handloom weavers (which has been stigmatised as "the destruction of the human race"). Since the repeal of the Corn Laws, during the period from 1846 to 1863, there have been eight years of comparatively lively trade and prosperity as contrasted with nine years of depression and stagnation. The condition of the adult male cotton operative, even during the period of prosperity, may be judged from the accompanying footnote.³

¹ *Op. cit.*, p. 27.

² From a letter by Mr. Harris, chief constable of Bolton, to *Reports of Inspectors of Factories*, October 31, 1863, pp. 61-62.

³ In the spring of 1863, the cotton operatives of Lancashire, etc., issued an appeal designed to promote the formation of a society for organising emigration. Here we read: "That a large emigration of factory workers is now absolutely essential to raise them from

8. THE REVOLUTION WHICH THE DEVELOPMENT OF LARGE-SCALE INDUSTRY HAS BROUGHT ABOUT IN MANUFACTURE, HANDCRAFTS, AND DOMESTIC INDUSTRY.

A. Disappearance of Cooperation based on Handicraft and on the Division of Labour

We have seen how machinery abolishes cooperation based upon handicraft, and also the form of manufacture which is based upon the division of handicraft labour. An example of the former kind is afforded by the reaping machine, which replaces the cooperation of hand reapers. A very striking example of the latter kind is afforded by the machine which makes sewing needles. Adam Smith tells us that in his day, thanks to the division of labour, 30 men could make more than 48,000 sewing needles in one day. At the present time, one machine can produce 143,000 needles in a working day of 11 hours. One woman or one

their present prostrate condition, few will deny; but to show that a continuous stream of emigration is at all times demanded, and without which it is impossible for them to maintain their position in ordinary times, we beg to call attention to the following facts. In 1814, the official value of cotton goods exported was £17,663,378; whilst the real marketable value was £20,070,824. In 1848, the official value of cotton goods exported was £182,221,681; but the real or marketable value was only £43,002,322, being a tenfold quantity sold for little more than double the former price. To produce results so disadvantageous to the country generally, and to the factory workers in particular, several causes have cooperated, which, had circumstances permitted, we should have brought more prominently under your notice; suffice it for the present to say that the most obvious one is the constant redundancy of labour, without which a trade so ruinous in its effects never could have carried on, and which requires a constantly extending market to save it from annihilation. Our cotton mills may be brought to a stand by the periodical stagnations of trade, which, under present arrangements, are as inevitable as death itself; but the human mind is constantly at work, and although we believe we are under the mark in stating that 6 millions of persons have left these shores during the last 25 years, yet, from the natural increase of population, and the displacement of labour to cheapen production, a large percentage of the male adults in the most prosperous times find it impossible to obtain work in factories on any conditions whatever." *Reports of Inspectors of Factories*, April 30, 1863, pp. 31-32.—We shall learn in a subsequent chapter how the factory owners tried, during the cotton catastrophe, to prevent the emigration of factory operatives, using all means in their power, and even demanding State intervention.

girl can, on the average, supervise the working of four such machines, and can therefore, with the aid of machinery, produce 600,000 sewing needles per diem or more than 3,000,000 sewing needles per week.¹ In so far as one single machine takes the place of cooperation or manufacture, it can itself serve as the basis for a handicraft industry. But such a reproduction of handicraft industry when based on machinery serves merely as the transition to factory industry, which, as a rule, arises as soon as mechanical power, such as steam-power or water-power, replaces the power of human muscles as the driving force of the machine. Only in a scattered way, and only as a transient phenomenon, can petty enterprise be wedded to mechanical driving force through the instrumentality of steam, as has happened in the case of certain branches of production in Birmingham; or thanks to the use of small caloric engines, in certain branches of the weaving industry, etc.² In the Coventry silk-weaving industry, the experiment of "cottage factories" was tried. Here rows of cottages were built round a square. In the middle of the square was an engine house, and the engine was connected by shafting with the looms in the cottages. The cottagers had to pay hire for the use of the steam—for instance, 2s. 6d. per loom. The charge for the use of the steam was payable weekly, whether the looms were kept running or not. Every cottage contained from two to six looms, which in some cases belonged to the workers, in others were purchased on credit, or were hired. The struggle between the cottage factory and the factory proper lasted more than twelve years, and ended in the utter ruin of the three hundred cottage factories.³ Where the nature of the process did not, from the start, demand production upon a large scale, we find that the new industries which have arisen during recent decades, such as envelope making, steel-pen making, etc., have, as a general rule, passed through brief stages of handicraft production and manufacturing production on the way to the installing of factory

¹ *Children's Employment Commission, Fourth Report, 1884, p. 108, n. 447.*

² In the United States, such a reproduction of handicraft upon a machine basis is common. Consequently, when the inevitable transition to the factory system takes place in that country, the ensuing concentration will, compared with Europe and even with England, advance in steam-laguer boots.

³ *Reports of Inspector of Factories, October 31, 1884, p. 54.*

production. A metamorphosis of this kind is most difficult when the manufacturing production of the finished article does not consist in a gradation of developmental processes but in a multiplicity of disconnected processes. This, for instance, has been a great hindrance in the case of the making of steel pens. However, about fifteen years ago an automatic machine was discovered competent to carry out six separate operations of pen making at once. The first steel pens were supplied by the handcraft system, in the year 1820, at 7s. 4s. a gross; in 1830, they were supplied by manufacture at 8s. a gross; now, manufacture supplies them wholesale at from 2s. to 6d. a gross.¹

B. Reaction of the Factory System on Manufacture and Domestic Industries

With the development of the factory system and with the occurrence of the accompanying revolution in agriculture, production in all other branches of industry not only undergoes a considerable extension, but also undergoes changes in character. Determinative everywhere becomes a principle of manufacture, which consists in an analysis of the process of production into its constituent phases, and in the solution of the problems that then arise by means of the application of mechanics, chemistry, etc.—in a word, the natural sciences. Hence, machinery pushes its way into the manufacturing industries, first for one detail process and then for another. Therewith the stabilised organisation of these manufactures, which was one corresponding to the old division of labour, is broken up, and a process of continuous change ensues. Apart from this, the composition of the collective worker, or in other words that of the combined working personnel, is fundamentally modified. In contrast with what happened during the manufacturing period, division of labour is now based upon the employment of women, of children of all ages, of unskilled labourers,

¹ The first steel-pen factory on the large scale was that established in Birmingham by Mr. Gillett. As early as 1831, it was producing more than 180 millions of steel pens per annum and was consuming 120 tons of steel. Birmingham has the monopoly of this industry in the United Kingdom, and is now producing thousands of millions of steel pens every year. According to the census of 1861, the number of persons employed was 1,428, of whom 1,028 were females from five years of age and upwards.

whenever this is possible—in short of “cheap labour” as the British characteristically term it. This applies, not only to combined production upon a large scale (whether machinery be used in it or not), but also to what is spoken of as home work or domestic industry, no matter whether it be carried on in the workers’ actual homes or in petty workshops. This so-called modern domestic industry has nothing but the name in common with the old type of domestic industry, which presupposed the existence of independent urban handicraft, an independent peasantry, and, above all, a dwelling-house for the worker and his family. The older kind of home industry has now been transformed into an outside branch of the factory, the manufactory, or the warehouse. In addition to the factory workers, manufacturing workers, and handicraft workers, whom it brings together in large numbers under its direct command, capital sets in motion, through the instrumentality of invisible threads, another army consisting of home workers scattered throughout the large towns and over the countryside. For instance, consider Messrs. Tillie’s shirt factory at Londonderry, where 2000 workers are employed in the factory and 9000 more are employed as home workers dispersed all over the countryside.¹

The exploitation of cheap and immature labour power is even more shameless in modern manufacture than in factories proper, for in manufacture there is lacking for the most part the technical basis of factory production, the replacement of muscular power by machinery so that the work becomes physically easy; and at the same time, in modern manufacture, women or children are subjected without a thought of the consequences to the influence of a number of poisonous substances. In domestic industry, moreover, exploitation is yet more outrageous than in manufacture, for the reason that the workers’ power of resistance is reduced because they are scattered. Furthermore, in modern domestic industry, a whole series of bloodthirsty parasites is able to intrude between the employer and the worker. Additional reasons for the scandalous exploitation of home workers are: that domestic industry has always to compete, either with the factory system, or else with manufacturing, in the same branch

¹ *Children’s Employment Commission, Second Report, 1864*, p. LXVIII, n. 415.

of production; that poverty robs the worker of the most necessary working conditions, such as space, light, and ventilation; that irregularity of employment is ever on the increase; and finally that, in these last refuges of the masses who are made "superfluous" by large-scale industry and agriculture, competition among the workers necessarily attains its climax. Economy in the means of production (which first becomes systematised in the factory system, and is there from the outset coincident with the most reckless squandering of labour power, and with the depriving of the workers of the conditions normally requisite for carrying on their work) now shows its most contradictory and murderous aspects more and more clearly, in inverse proportion to the degree to which the social productivity of labour and the technical foundation for a combined labour process are developed.

C. Modern Manufacture

Let me now give a few examples to illustrate what has just been said. As a matter of fact, the reader is already familiar with much concerning this matter which has been brought to his notice in the discussion of the working day. The greater part of the heavy work required for the metal manufactures in Birmingham and its environs is performed by 30,000 children and young persons with the aid of 30,000 women. Women and children are to be seen working in the unwholesome brass foundries, button factories, enamelling, galvanising, and lacquering works.¹ Owing to the excessive labour imposed upon the workpeople, both adult and young, in certain London houses where newspapers and books are printed, these places have acquired the ill-omened name of "slaughter houses".² Similar excesses occur in the book-binding trade, the victims here being mainly women, girls, and children. Young persons are engaged upon heavy work in rope walks; and upon night-work in salt mines, candle manufactories, and other chemical manufactories. Again, in the silk-weaving industry, where power-looms are not used, young folk are terribly overworked in keeping the

¹ At the present time, children are actually employed in Sheffield at file cutting.

² *Children's Employment Commission, Fifth Report, 1888, p. 1 n. 24; p. 4, nn. 33 and 36; p. 7, nn. 39 and 40.*

looms going.⁴ One of the most abominable, dirtiest, and worst-paid kinds of labour, in which by preference young girls and women are employed, is rag sorting. Every one knows that Great Britain, besides having a large domestic supply of rags, is the emporium for the rag trade of the whole world. Rags flow in from Japan, from the most distant States of South America, and from the Canary Islands. But their main sources are Germany, France, Russia, Italy, Egypt, Turkey, Belgium, and Holland. They are used as manure, in the making of bed flocks, in the preparation of shoddy, and as the raw material of paper. Rag sorters are instrumental in spreading smallpox and other infectious disorders, the sorters being themselves the first victims.⁵ A classical example of overwork, of hard and unsuitable labour, and of its brutalising effect on the worker from childhood upwards, is presented, not only by coalmining and mining generally, but also by tilemaking and brick-making, for in this industry the recently invented machinery is, in England, used only here and there [written in 1866]. From May to September, the work is carried on from 5 in the morning till 8 in the evening; and, when the drying is done in the open air, often from 4 in the morning till 9 in the evening. A working day from 5 in the morning to 7 in the evening is regarded as "reduced" or "moderate". Children of both sexes are employed, from the age of six, and even from the age of four. They toll the same number of hours as the grown-ups and often longer. The work is arduous, and the summer heat intensifies exhaustion. In a certain tile field at Mosley, for instance, a young woman, 24 years of age, was in the habit of making 2000 tiles a day, with the assistance of two little girls who carried the clay for her and stacked the tiles. These girls carried daily 20 tons up the slippery sides of the clay pits, from a depth of 30 ft., and then through a horizontal distance of 120 ft. "It is impossible for a child to pass through the purgatory of a tile field without great moral degradation. . . . The low language which they are accustomed to hear from their

⁴ *Op. cit.*, pp. 214-215, nn. 6 and 7. The commissioner makes the judicious remark that, whereas elsewhere machinery replaces human beings, here, literally, children replace machinery.

⁵ The *Eight Report on Public Health*, London, 1866, contains (in the appendix, pp. 196-208) an account of the rag trade, giving numerous details.

tenderest years, the filthy, indecent, and shameless habits, amidst which unknowing and half wild they grow up, make them in after life lawless, abandoned, dissolute. . . . A frightful source of demoralization is the mode of living. Each moulder, who is always a skilled labourer, and the chief of a group, supplies his seven subordinates with board and lodging in his cottage. Whether members of his family or not, the men, boys, and girls, all sleep in the cottage, which contains generally two, exceptionally three rooms, all on the ground floor and badly ventilated. These people are so exhausted after the day's work, that neither the rules of health, of cleanliness, nor of decency are in the least observed. Many of these cottages are models of untidiness, dirt, and dust. . . . The greatest evil of the system that employs young girls on this sort of work, consists in this, that, as a rule, it chains them fast from childhood for the whole of their after life to the most abandoned rabble. They become rough, foul-mouthed boys before nature has taught them that they are women. Clothed in a few dirty rags, the legs naked far above the knees, hair and face besmeared with dirt, they learn to treat all feelings of decency and of shame with contempt. During mealtimes they lie at full length in the fields, or watch the boys bathing in a neighbouring canal. Their heavy day's work at length completed, they put on better clothes, and accompany the men to the public houses." It need hardly be said that in this class of people gross intemperance prevails from childhood upwards. "The worst is that the brickmakers despair of themselves. 'You might as well', said one of the better kind to a chaplain of Southallfield, 'try to raise and improve the devil as a brickie, Sir!'"

As to the way in which the capitalist economising of the requisites of labour is effected in modern manufacture (in which I include all the workshops except factories proper in which industry is carried on upon a large scale) abundant material derived from official sources will be found in the *Public Health Reports, Fourth Report* (1861) and *Sixth Report* (1864). The description of the workshops, especially those of the London printers and tailors, surpasses the most nauseating fancies of novelists. The effect of the conditions

* *Children's Employment Commission, Fifth Report*, 1866, p. XVI, nn. 95 and 97, and p. 130, nn. 39 and 41. See also *Third Report*, 1864, pp. 48 and 56.

upon the worker's health is obvious. Dr. Simon, principal medical officer of the Privy Council and the official editor of the *Public Health Reports*, writes: "In my *Fourth Report* (1863), I showed how it is practically impossible for the workpeople to insist upon that which is their first sanitary right, viz. the right that, no matter what the work for which their employer brings them together, the labour, so far as it depends upon him, should be freed from all avoidably unwholesome conditions. I pointed out, that while the workpeople are practically incapable of doing themselves this sanitary justice, they are unable to obtain any effective support from the paid administrations of the sanitary police. . . . The life of myriads of workmen and workwomen is now uselessly tortured and shortened by the never-ending physical suffering that their mere occupation begets." In illustration of the way in which the workrooms influence the state of health, Dr. Simon gives the following table of mortality:^a

Number of Persons of all Ages Employed in the Respective Industries.	Industries compared as regards Health.	Deaths per 10,000 Men in the Respective Industries between the Stated Ages.		
		Age 15-25.	Age 25-45.	Age 45-75.
953,265	Agriculture in England and Wales	743	805	1,245
22,301 men ..	London tailors	958	1,262	2,693
12,379 women }				
13,803	London printers	894	1,747	2,367

^a *Public Health, Sixth Report*, London, 1864, p. 31.

^b *Op. cit.*, p. 30.—Dr. Simon remarks that the mortality of the London tailors and printers between the ages of 25 and 35 is actually much greater than the table shows, because the employers import from the rural districts a great number of young people under 20 years of age, who come to be perfected in the trade, and are known as "apprentices" or "improvers". These figure in the census as Londoners, and swell the number of heads upon which the London death-rate is calculated, without seriously contributing to the actual number of deaths among the Londoners. The greater part of them return to the country; and, more especially, they go back to their homes should they become seriously ill.

D. Modern Domestic Industry

I now turn to what is called domestic industry. To get an idea of this type of capitalist exploitation which goes on behind the scenes of large-scale industry, and to secure a real grasp of its abominations, we should study the industry of nailmaking, carried on in what to all appearance are the idyllic surroundings of a remote English village.¹ For my present purposes, however, it will be enough to give a few examples from those branches of the lacemaking and straw-plaiting industries that are not yet carried on with the aid of machinery, and that do not as yet come into competition with branches of this work carried on in factories or in manufactories.

Of the 150,000 persons engaged in lacemaking in England, about 10,000 come under the scope of the Factory Act of 1861. Almost the whole of the remainder (140,000) are women and young persons or children of both sexes, there being very few males in the last category. The health of this "cheap" material for exploitation is indicated by the following table, compiled by Dr. Trevelyan, physician to the Nottingham General Dispensary. Among 686 female patients who were lacemakers, most of them between the ages of 17 and 24, the number of consumptives² was as follows:

1853—1 in 45.	1855—1 in 18.	1859—1 in 9.
1853—1 in 28.	1856—1 in 15.	1860—1 in 8.
1854—1 in 18.	1857—1 in 13.	1862—1 in 8.
	1858—1 in 15.	

The advance in the ratio of consumptives ought to satisfy the most optimistic of progressives, and even the prize liars among the free-trade bagmen of Germany.

The Factory Act of 1861 controls the actual making of lace in so far as the lace is made by machinery, this being the rule in England. The branches which we shall now briefly consider (solely with regard to those of the work-people who work at home, and ignoring those who work

¹ I allude here to hammered nails, as contrasted with nails which are cut out and made by machinery. Cf. *Children's Employment Commission, Third Report*, p. XI; p. XIX, nn. 105-130; p. 51, n. 11; p. 114, n. 487; p. 137, n. 474.

² *Children's Employment Commission, Second Report*, p. XXII, n. 166.

in manufactories, warehouses, etc.) fall into two divisions: 1, finishing; 2, pillow lacemaking. The former consists of the finishing of machine-made lace, and this in turn comprises numerous subdivisions.

Lace finishing is either done in what are called "mistresses' houses"; or else by women in their own houses, with or without the help of their children. The women who keep the "mistresses' houses" are themselves extremely poor. The workroom is part of their own dwelling. They take orders from the factory owners, the warehousemen, etc., and employ women, girls, and young children, in numbers dependent upon the size of the workroom and the fluctuating demands of the business. The number of workwomen employed in such a workroom will range from twenty to forty in one, or from ten to twenty in another. The average age at which the children begin work is six years, but many begin before they are five. The usual working day is from 8 in the morning till 8 in the evening, with $1\frac{1}{2}$ hours off for mealtimes, which are extremely irregular, and often the food has to be eaten in the foul workrooms. When trade is good, the work frequently goes on from 8 (sometimes 6) in the morning until 10, 11, or 12 at night. In British barracks the law prescribes that every soldier shall have from 500 to 600 cub. ft. of airspace; and in the army hospitals, the airspace must be 1200 cub. ft. In the pigsties where women work at lacemaking, the cubic airspace ranges from 67 to 100 cub. ft. per person. Furthermore, there are gas lamps to exhaust the air. Although the workrooms have tiled or stone flooring, in order that the lace may be kept clean, the children are often forced, even in winter, to take off their shoes. "It is not at all uncommon in Nottingham to find 14 to 20 children huddled together in a small room of, perhaps, not more than 12 ft. square, and employed for 15 hours out of the 24, at work that of itself is exhausting, from its weariness and monotony, and is besides carried on under every possible unwholesome condition. . . . Even the very youngest children work with a strained attention and a rapidity that is astonishing, hardly ever giving their fingers rest or slowing their motion. If a question be asked them, they never raise their eyes from their work for fear of losing a single moment." The "mistresses" use the "long stick" as a stimulant more and more freely as hour succeeds hour. "The children gradually tire and become as restless

as birds towards the end of their long detention at an occupation that is monotonous, eye-straining, and exhausting from the uniformity in the posture of the body. Their work is like slavery."¹ When women work at home with the aid of their own children (this being a "home" in the modern sense of a single hired room, often an attic room), conditions are, if possible, worse. Work of this kind is given out within a circle of eight miles' radius from Nottingham. The children who are employed in the warehouses, when leaving at 9 or 10 in the evening, will often be given a bundle to take home with them and finish there. The capitalist pharisee, through the instrumentality of one of his wage slaves, when handing over this home work, does so with the unctuous phrase, "That's for mother"; yet he knows perfectly well that the poor child will have to sit up and help in the work.²

Pillow lacemaking is chiefly carried on in England in two agricultural districts. One of these, the Honiton lacemaking district, extends for from twenty to thirty miles along the coast of South Devon, but includes a few places in North Devon. The other district comprises the greater part of the counties of Buckingham, Bedford, and Northampton, together with the neighbouring parts of Oxfordshire and Huntingdonshire. The agricultural workers' own cottages usually form the workshops. Many manufacturers employ upwards of three thousand of these home workers, mostly children and young persons, all females. The conditions previously described in connexion with lace finishing, are reproduced here. The only difference is that instead of the "mistresses' houses", we find what are called "lace schools" kept by poor women in their cottages. In these "schools", children whose ages range from five years up to twelve or fifteen are at work. The very little ones work from four to eight hours, but when they are older they put in a full working day from 6 in the morning until 8 or 10 in the evening. "The rooms are generally the ordinary living rooms, of small cottages, the chimney stopped up to keep out draughts, the inmates kept warm by their own animal heat alone, and this frequently in winter. In other cases, these so-called schoolrooms are like small store-rooms without fireplaces. . . . The overcrowding in these dens

¹ *Children's Employment Commission, Second Report, 1864*, pp. XIX, XX, XXI.

² *Op. cit.*, pp. XXI and XXVI.

and the consequent vitiation of the air are often extreme. Added to this is the injurious effect of drains, privies, decomposing substances, and other filth usual in the suburbs of the smaller cottages." With regard to space: "In one lace school, 18 girls and a mistress, 35 cub. ft. to each person; in another, where the smell was unbearable, 18 persons and 24½ cub. ft. per head. In this industry are to be found employed children of 2 and 2½ years."

In the counties of Buckingham and Bedford, where lace-making ends straw-plaiting begins, and extends also over a large part of Hertfordshire and the westerly and northerly parts of Essex. In the year 1861, 40,043 persons were engaged in straw-plaiting and the making of straw hats; 3813 were males of all ages, the remainder being females, of whom 14,913 were under twenty years of age, 7000 of them being children. Here, instead of the lace schools, we have "straw-plait schools". The children begin to learn straw-plaiting, as a rule, at the age of four, but in many cases even at three. Naturally they never have any education. The children themselves speak of the elementary schools as "natural schools", in contradistinction with the bloodsucking establishments where they are kept at work simply in order to get through the task set them by their half-starved mothers. Usually they have to complete 30 yards of plaiting per diem. Their mothers often make them work at home after "school" is over, until 10, 11, or 12 o'clock at night. The straw cuts their fingers, and also their mouths, with which they constantly moisten it. According to Dr. Ballard, the general opinion of medical officers of health in London is that 300 cub ft. is the minimum space which should be allowed per person in a bedroom or a workroom. But in the straw-plait schools, space is even more exiguous than in lace schools, "12½, 13, 18½, and below 22 cub. ft. for each person". The smallest of these figures, says Commissioner White, represents less space than half of that which a child would occupy were it packed into a box of 3 ft. each way. Thus do the children enjoy life until the age of twelve or fourteen. The wretched parents, themselves almost dying of hunger, think only of getting as much work as they can out of the children. Naturally the latter, as soon as they are grown up, leave their parents, for whom they care nothing. "It is no wonder that ignorance and vice

abound in a population so brought up. . . . Their morality is at the lowest ebb. . . . A great number of the women have illegitimate children, and that at such an immature age that even those most conversant with criminal statistics are astounded."¹ Still, Count Montalembert, who is unquestionably a competent authority upon matters Christian, tells us that the land in which these model families have their homes is the model country of Christian Europe!

Wages in the above industries, pitiful as they are (rarely do children in the straw-plaiting schools receive as much as 3s.), are depressed, as far as real wages are concerned, by the widespread prevalence of the truck system, which is especially rife in the lace-making districts.²

E. Transition of Modern Manufacture and Domestic Industry into Large-Scale Industry. Hastening of this Revolution by the Application of the Factory Acts to the two Former

The cheapening of labour power by the sheer misuse of the labour power of women and children, the sheer theft of all the normal conditions of life and labour, and the sheer brutality of overwork and nightwork, encounters, at long last, certain limits imposed by nature, limits which cannot be overstepped. Thus limits are also imposed upon the cheapening of commodities (on such a basis), and upon capitalist exploitation in general. When this point is finally reached (and it is not reached for a long time), the hour has struck for the introduction of machinery and for a speedy transformation of scattered domestic industries (or scattered manufactures) into factory industry.

An example of this transformation on a stupendous scale is offered by the production of wearing apparel. According to the classification of the Children's Employment Commission, this industry includes straw-hat makers, ladies'-hat makers, capmakers, tailors, milliners and dressmakers, shirtmakers, corsetmakers, glovemakers, shoemakers, and many minor branches, such as the making of neckties, collars, etc. In the year 1861, the number of females employed in these industries in England and Wales was 586,298, of whom at least 115,142 were under twenty years of age.

¹ *Op. cit.*, pp. XL, XLI.

² *Children's Employment Commission, First Report, 1863*, p. 125.

and 16,650 under fifteen. In the United Kingdom, the number of these female workers in 1861 was 750,334. At the same date, the number of male workers employed in hatmaking, glovemaking, shoemaking, and tailoring in England and Wales, was 437,960, of whom 14,964 were under fifteen years of age, 89,285 from fifteen to twenty years of age, and 333,117 over twenty. Many of the minor trades comprised in these industries are not included in the foregoing figures. However, if we take the figures as they stand, we find that in England and Wales alone, according to the census of 1861, in all 1,024,277 persons were employed upon the making of wearing apparel, so that this industry occupies about as many as are engaged in agriculture and the tending of cattle. We begin to understand why machinery is able to conjure up such vast quantities of products, thus helping "to set free" such vast numbers of workers.

The production of wearing apparel is carried on, partly in manufactories within which there is but a reproduction of that division of labour, the scattered materials for which were found ready to hand; partly by small master handicraftsmen, who, however, do not work as of old for individual consumers, but for manufactories and warehouses, so that whole towns and rural areas may be engaged in such branches as shoemaking, etc., as specialties; partly, and more extensively, by so-called home workers, who form the outdoor department of the manufactories, of the warehouses, and even of the workshops of the smaller master craftsmen.¹

The materials for the work (raw materials, intermediate products, etc.) are supplied by large-scale industry; the cheap labour (human material for ruthless exploitation) consists of the persons "liberated" by large-scale industry and agriculture. Manufactures of this class owed their origin mainly to the need felt by the capitalists to have under their hand an army of workers ready to meet every increase in demand.² But these manufactures allowed the

¹ In England, millinery and dressmaking are for the most part carried on in the employers' premises, partly by workwomen who live in, and partly by workwomen who live in their own homes and attend at the workshop for the day.

² Commissioner White visited a manufacturer of army clothing who employed from 1000 to 1200 persons almost all of the female sex; a shoe manufacturer employing 1500 persons, of whom nearly half were children and young persons; and so on. *Children's Employment Commission, Second Report*, p. XVII, n. 302.

scattered handicrafts and domestic industries to continue in existence as a broad foundation. The great production of surplus value in such branches of work, together with the progressive cheapening of the articles they produce, have been in the past and are now mainly due to the lowness of the wages paid in them (wages hardly sufficient for a bare subsistence) in conjunction with working hours extended to the maximum that is humanly possible. It is, in fact, owing to the cheapness of human sweat and human blood thus transformed into commodities, that there has been and is a ceaseless extension of the market for the goods thus produced. As far as England is concerned, this is mainly the colonial market, where English customs and English taste are dominant. At length a critical point was reached. The foundation of the old method, sheer brutality in the exploitation of the labour material, accompanied more or less by a systematic division of labour, was no longer able to cope with the growing demands of the market or to make headway against the still more rapidly growing competition among the capitalists. The hour had struck for the introduction of machinery. The decisively revolutionary machine, the machine which extends its grasp over all the numberless branches in this sphere of production, such as dressmaking, tailoring, shoemaking, needlework, hatmaking, etc.—is the sewing machine.

Its immediate effect upon the workers is pretty much the same as that of all machinery which conquers new branches during the period of large-scale industry. Very young children are no longer employed. The wages of the machine workers rise as compared with those of the home workers, many of whom belong to the poorest of the poor. The wages of the skilled handicraftsmen, who have hitherto been in a comparatively good position, fall now that machinery enters into competition with them. The new machine workers are exclusively girls and young women. With the aid of mechanical power, they break down the monopoly of male labour in heavy work, while they displace from the lighter work numbers of old women and very young children. The overwhelmingly powerful competition crushes the weaker among the handicraftsmen. The terrible increase in the number of deaths from starvation in London during the last decade has gone hand-in-hand with the

extension of machine sewing.¹ The new workwomen drive the sewing machines by hand or by treadle, sitting or standing, as the heaviness, size, and specialties of the machine may demand. Thus they expend a great deal of labour power. Their occupation is unhealthy owing to the long hours, although these are usually shorter than under the old system. Wherever the sewing machine makes its way into workrooms which are already small and overcrowded—as in shoemaking, corsetmaking, hatmaking, etc.—the unwholesomeness of these workplaces is increased. According to Mr. Lord: "The effect on entering low-ceiled workrooms in which 30 to 40 machine hands are working is unbearable. . . . The heat, partly due to the gas stoves used for warming the irons, is horrible. . . . Even when moderate hours of work, i.e. from 8 in the morning till 6 in the evening, prevail in such places, yet 3 or 4 persons fall into a swoon regularly every day."²

The revolution in the social methods of carrying on industry, a revolution which necessarily follows upon the revolution in the means of production, expresses itself in a medley of transitional forms. These forms vary according to the extent to which the sewing machine has come into use in one branch of industry or the other, the time during which it has been in operation, the previous condition of the workers, the preponderance of manufacture, handicraft, or domestic industry, the rent of the workshop,³ and so on. In dressmaking, for instance, where for the most part work was already organized (mainly in the form of simple cooperation), the sewing machine to begin with is nothing more than a new factor of manufacturing production. In tailoring, shirtmaking, shoemaking, etc., all the forms of production are inextricably intermingled. Here, we find

¹ Here is an instance. In the registrar general's weekly reports, under date February 26, 1884, we find five cases of death from starvation. On the same day the "Times" reports another case. Six victims of starvation in one week!

² *Children's Employment Commission, Second Report, 1884*, p. LXXVII, nn. 406 to 409; p. 84, n. 124; p. LXXIII, n. 441; p. 86, n. 6; p. 84, n. 126; p. 78, n. 83; p. 76, n. 69; p. LXXII, n. 483.

³ "The rental of premises required for workrooms seems the element which ultimately determines the point, and consequently it is in the metropolis that the old system of giving work out to small employers and families has been longest retained, and earliest returned to." *Op. cit.*, p. 83, n. 123.—The concluding statement in this quotation refers exclusively to shoemaking.

a pure factory system of production. There, middlemen receive the raw material from the chief capitalist, and group around their sewing machines, in "chambers" and "garrets", from ten to fifty or more workwomen. Elsewhere, as in the case of all the machinery which does not form a great articulated system but which is operable on a dwarf scale, some manufacturing workers or home workers make use of machines owned by themselves, with the aid of members of their own family, and sometimes with that of a small number of hired workers.¹ In England to-day the preponderant system is for the capitalist to aggregate a great number of machines into his own workshops, and then to distribute the machine-made product for further elaboration among the army of home workers.² Still, the multiplicity of the transitional forms does not conceal the tendency to the transformation of the industry into a factory one in the proper sense of the term. This tendency is promoted by the very nature of the sewing machine, the manifold uses of which encourage the concentration, under one roof and one management, of previously separated branches of a trade. It is also favoured by the circumstances that preparatory needlework and certain other operations can best be carried out in the place where the machine is used. Finally this tendency is furthered by the inevitable expropriation of the handicraftsmen and home workers who produce with their own machines. This fate has already to a considerable extent overtaken them. The steadily increasing amount of capital invested in sewing machines³ stimulates production and leads to gluts in the market, these compelling the home workers to sell their machines. Overproduction of the sewing machines themselves leads the producers, who must find a market for their goods, to let the machines out on hire, and this gives rise to a competition that is deadly to the small machine owners.⁴ Consequent changes in the construction of the machines, and their increasing cheapness, lead to a steady depreciation in the older makes, which are then sold in large numbers at knock-down prices, the

¹ In glove-making and certain other industries in which the position of the workers can scarcely be distinguished from that of peasants, this does not occur.

² *Op. cit.*, p. 2, n. 122.

³ Already in 1864, in the wholesale boot and shoe trade of Leicester alone, there were 800 sewing machines at work.

⁴ *Op. cit.*, p. 84, note 124.

purchasers being large capitalists, the only ones who can use them at a profit. Finally, in this as in all similar industrial revolutions, the substitution of steam-power for human muscle as the motive force settles the issue. To begin with, the application of steam-power encounters technical difficulties, such as unsteadiness in the machines, difficulties in controlling their speed, rapid deterioration of the lighter machines, and so on—hindrances which can quickly be overcome with the aid of experience.¹ While, on the one hand, the concentration of many working machines in great manufactories gives an impetus to the utilisation of steam-power, on the other hand, the competition of steam with human muscles hastens the concentration of workers and working machines into great factories. To-day, therefore, as far as the huge productive industry for the making of wearing apparel is concerned, there is going on in England, as in so many other industries, a transformation of manufacture, handicraft, and domestic industry, into factory industry; after each of these earlier forms of production, totally changed and disorganised under the influence of large-scale industry, has long since reproduced and even outdone all the horrors of the factory system, without participating in any of its genuine advances.²

This industrial revolution, which is a spontaneous process, is artificially hastened by the extension of the Factory Acts to all the branches of industry in which women, young persons, and children are engaged. The compulsory regulation of the working day in respect of its length, its pauses, the hours at which it begins and ends,

¹ Thus in the army-clothing depot at Finslow, these difficulties have been overcome. So they have in Tails and Henderson's shirt factory at Loughborough. Also in Tate's clothing factory at Lissack, where about 1200 "hands" are employed.

² "Tendency to factory system." *Op. cit.*, p. LXVII.—"The whole employment is at this time in a state of transition, and is undergoing the same change as that effected in the lace trade, weaving, etc." *Op. cit.*, n. 403.—"A complete revolution." *Op. cit.*, p. XLVI, n. 308.—At the time when the Children's Employment Commission was sitting in 1840, the making of stockings was still done by manual labour. Since 1840, various stocking-making machines have been introduced, and these are now driven by steam-power. The total number of persons engaged in stocking-making in England, persons of both sexes and of all ages from those upwards, was in 1861 about 120,000. But according to the *Parliamentary Return* of February 11, 1864, only 4063 of these were working under the Factory Acts.

the system of relays for children, the prohibition of the employment of children below a certain age, and so on—necessitate, on the one hand, an increased use of machinery; and the replacement of human muscles by steam-power as a motive force.³ On the other hand, in order to gain in space what has been lost in time, there occurs an extension in the domain of the jointly used means of production, the furnaces, the buildings, etc. In a word, there ensues a greater concentration of the means of production, and a correspondingly greater aggregation of workpeople. Manufacturers threatened with the application of the Factory Acts to their enterprises are all agreed in their passionate asseverations to the effect that this will necessitate a greater outlay of capital if the business is to be carried on upon the old scale. As far as concerns the intermediate forms between manufacture and domestic industry, and also domestic industry itself, the ground is cut from under them when legal limitations are imposed upon the length of the working day and the employment of children. They can no longer compete, for they have been deprived of the only basis on which competition is possible to them—the unrestricted exploitation of cheap labour-power.

An essential requisite for factory production, especially when it has been subjected to a regulation of the working day, is that there should be a normal certainty of a result; this meaning the production of a definite quantity of commodities, or of the desired useful result, within a given period of time. The statutory pauses in the working day imply, further, that it must be possible to arrange for sudden and periodical stoppages in the process of production without any impairment of the quality of the finished article. Such a certainty of a result and such a capacity for spells of rest in the working process are, naturally, far more easy of attainment in purely mechanical processes than in those

³ For instance, in the earthenware trade, Messrs. Cochrane, of the Britain Pottery, Glasgow, report: "To keep up our quantity we have gone extensively into machines wrought by unskilled labour, and every day convinces us that we can produce a greater quantity than by the old method." *Reports of Inspectors of Factories*, October 31, 1863, p. 13.—"The effect of the Factory Acts is to force on the further introduction of machinery." *Op. cit.*, pp. 13-14.

⁴ Thus, after the extension of the Factory Acts to the potteries, there was a great increase in the use of power jiggers in the place of hand-moved jiggers.

processes in which chemical and physical changes play a part, as, for instance, in the potteries, bleaching, dyeing, baking, and most metal industries. Under the "good old rule" of the unrestricted working day, nightwork, and the squandering of human material, all the natural difficulties that arise in the process of production come soon to be regarded as "insuperable natural obstacles". No poison destroys vermin with such certainty as that with which the Factory Acts overcome such "insuperable natural obstacles". No one made more to do about "impossibilities" than the gentlemen who owned the potteries. In 1864, the Factory Act was applied to their concerns, and all the impossibilities had vanished into space within sixteen months. "The improved method", called forth by the Act, "of making slip by pressure instead of by evaporation, the newly constructed stoves for drying the ware in its green state, etc., are each events of great importance in the pottery art, and mark an advance which the preceding century could not rival. . . . It has even considerably reduced the temperature of the stoves themselves, with a considerable saving of fuel, and with a readier effect on the ware."¹ Notwithstanding all the prophecies that had been made, there was no increase in the cost price of earthenware, but there was a considerable increase in the amount of product, so that the exports for the twelve months ending December 1865 were valued at £158,608 above the average of the preceding three years. In the matchmaking industry, it was regarded as a natural law that boys should go on dipping matches in melted phosphorus even while bolting their dinner, and while the poisonous vapour was rising into their faces. In 1864, the Factory Act made it necessary to economise time in this industry, and thereupon there came into use a dipping machine, the vapour from which could not come into contact with the workers.² At the present time, in those branches of lace manufacture which are not yet subject to the Factory Act, we are told that mealtimes cannot be regular, because the different kinds of lace need

¹ *Reports of Inspectors of Factories*, October 31, 1865, pp. 96 and 107.

² The introduction of this and other machinery into matchmaking led, in one department alone, to the replacement of 250 young persons by 30 boys and girls of ages ranging from 14 to 17. In 1865, when steam-power came into use, a still greater saving in labour was effected.

different periods for drying, periods which vary from three minutes up to an hour or more. The Children's Employment Commissioners have a good answer. They say: "The circumstances of this case are precisely analogous to that of the paper stainers dealt with in our first report. Some of the principal manufacturers in the trade urged that, in consequence of the nature of the materials used, and their various processes, they would be unable, without serious loss, to stop for mealtimes at any given moment. But it was seen from the evidence that, by due care and previous arrangement, the apprehended difficulty would be got over; and accordingly, by Clause 6 of Section 6 of the Factory Acts Extension Act, passed during this session of parliament, an interval of 18 months is given to them from the passing of the Act before they are required to conform to the meal hours specified by the Factory Acts."¹ Almost immediately after the Act had been passed, the manufacturers made a discovery: "The inconvenience we expected to arise from the introduction of the Factory Acts into our branch of manufacture, I am happy to say, have not arisen. We do not find the production at all interfered with; in short, we produce more in the same time."² The British parliament, though no one will reproach it with an excess of intelligence, has been taught by experience that legal compulsion suffices to make an end of the so-called natural obstacles, in the productive process, to a limitation and regulation of the working day. When the Factory Act is introduced into a branch of industry, parliament therefore prescribes a period of from six to eighteen months, within which the factory owner must apply himself to get rid of these technical obstacles. Mirabeau's famous remark, "Impossible? Never use that stupid word to me!" is especially applicable to modern technology. Nevertheless, though the Factory Acts thus artificially ripen the material conditions requisite for the transformation of the manufacturing system into the factory system; at the same time, since they render a more considerable outlay of capital necessary, they hasten the decay of the small masters and the concentration of capital.³

¹ *Children's Employment Commissioners, Second Report, 1864*, p. IX, n. 50.

² *Reports of Inspectors of Factories, October 31, 1865*, p. 11.

³ "But it must be borne in mind that those improvements, though carried out fully in some establishments, are by no means general.

Apart from purely technical obstacles, which can be overcome by technical means, regulation of the working day comes into conflict with irregular habits of the workers, especially where piece-work rates of payment prevail, so that idleness in one part of the day or the week can be made up for subsequently by excessive intensity of work or by nightwork—a method which is brutalising to the adult male worker and ruinous to women and young persons.¹ Although this irregularity in the expenditure of labour power is to some extent a natural and crude reaction against the tedium of a monotonous occupation, to a much greater degree it arises out of the anarchy of production, and this, in its turn, is the expression of the unbridled exploitation of labour power by capital. For, in addition to the general periodical alternations of the industrial cycle and to the oscillations of the market which are peculiar to each branch of production, there are what are termed seasonal variations: these depending partly on the fact that certain seasons of the year are more favourable to navigation than others; and partly upon fashion, or the sudden arrival of large orders that have to be executed in the shortest possible time. The habit of giving such large orders on the spur of the moment becomes more frequent as railways and telegraphs extend. "The extension of the railway system throughout the country has tended very much to encourage giving short notice. Purchasers now come up from Glasgow, Manchester, and Edinburgh, once every fortnight or so, to

and are not capable of being brought into use in many of the old manufactories without an expenditure of capital beyond the means of many of the present occupiers."—Subspector May tells us that a temporary disorganisation necessarily accompanies the introduction of the Factory Acts. But, he says, such a temporary disorganisation is "directly indicative of the evils which it was intended to remedy". *Reports of Inspectors of Factories*, October 31, 1866.

¹ In the case of blast furnaces, for instance, "work towards the end of the week being generally much increased in duration in consequence of the habit of the men of idling on Monday and occasionally during a part or the whole of Tuesday also". *Children's Employment Commission, Third Report*, p. VI.—"The little masters generally have very irregular hours. They lose two or three days, and then work all night to make it up. . . . They always employ their own children, if they have any." *Op. cit.*, p. VII.—"The want of regularity in coming to work encouraged by the possibility and practice of making up for this by working longer hours." *Op. cit.*, p. XVIII.—"In Birmingham. . . . an enormous amount of time is lost, . . . idling part of the time, slaving the rest." *Op. cit.*, p. XI.

the wholesale city warehouses which we supply, and give small orders requiring immediate execution, instead of buying from stock as they used to do. Years ago we were always able to work in the slack times, so as to meet the demand of the next season, but now no one can say beforehand what will be the demand then."¹

In the factories and manufactories which have not yet been subjected to the working of the Factory Act, there is a periodical recurrence of the most exhausting overwork during the so-called season, this happening by fits and starts as a result of the sudden placing of orders. In the outside department of the factory, the manufactory, or the warehouse, in the sphere of domestic industry (where, in any case, work is quite irregular, seeing that the supply of raw material and the placing of orders are wholly dependent upon the caprices of the capitalist, who in this domain is not restrained by any considerations for the due utilisation of buildings, machinery, etc., and who in the field of home industry risks nothing but the worker's skin), steps are systematically taken to ensure that there shall always be an industrial reserve army available. During part of the year, this army is decimated by inhuman toil, and during the rest of the year it is reduced to beggary by lack of work. "The employers avail themselves of the habitual irregularity of the home work, when any extra work is wanted at a push, so that the work goes on till 11 and 12 p.m., or 2 a.m., or, as the usual phrase is 'all hours', and that in localities where 'the stench is enough to knock you down'. You go to the door perhaps, and open it, but shudder to go farther."² Again: "They are curious men", said one of the witnesses, a shoemaker, speaking of the masters; "they think it does a boy no harm to work too hard for half the year, if he is nearly idle for the other half."³

Like the technical difficulties, so also what are termed "usages" which have grown with the growth of trade "are described by interested capitalists as "natural restrictions"

¹ *Children's Employment Commission, Fourth Report*, p. XXXII.—"The extension of the railway system is said to have contributed greatly to this custom of giving sudden orders, and the consequent hurry, neglect of meal-times, and late hours of the workpeople." *Op. cit.*, p. XXXI.

² *Children's Employment Commission, Fourth Report*, p. XXXV, nn. 235 and 237.

³ *Children's Employment Commission, Fourth Report*, p. 127, B. 36.

imposed upon production. This was a favourite complaint of the cotton lords at the time when they were first threatened with the extension of the Factory Act to their industry. Although the cotton trade depends more than any other upon the world market, and therefore upon navigation, experience has given them the lie. Since then, every alleged obstruction to business has been treated by the British factory inspectors as pure humbug.¹ The thoroughly conscientious investigations of the Children's Employment Commission show, in fact: first, that in certain industries it is only thanks to the regulation of the working day that the labour already employed in the industry has come to be employed more regularly throughout the year;² secondly, that the regulation of the working day has been the first thing to impose a reasonable restraint upon the murderous and meaningless caprices of fashion, caprices that are so much out of harmony with the system of large-scale industry;³ thirdly, that the development of oceanic transport and of the means of communication in general has done away with the only genuine reason for seasonal work;⁴ fourthly, that all the other difficulties which have been described as "insuperable" vanish when buildings are enlarged, when additional machinery is supplied, when there is a suitable increase in the number of workpeople

¹ "With respect to the loss of trade by non-completion of shipping orders in time, I remember that this was the pet argument of the factory masters in 1832 and 1833. Nothing that can be advanced now on this subject, could have the force that it had then, before steam had halved all distances and established new regulations for transit. It quite failed at that time of proof when put to the test, and again it will certainly fail should it have to be tried." *Reports of Inspectors of Factories*, October 31, 1864, pp. 34-35.

² *Children's Employment Commission, Fourth Report*, p. XVIII, n. 118.

³ John Ballou remarked as long ago as 1869: "The uncertainty of fashions does increase needless poor. It has two great mischiefs in it. First, the journeymen are miserable in winter for want of work, the masters and master weavers not daring to lay out their stocks to keep the journeymen employed before the spring comes, and they know what the fashion will then be; secondly, in the spring the journeymen are not sufficient, but the master weavers must draw in many apprentices, that they may supply the trade of the kingdom in a quarter or half a year, which robs the plough of hands, drains the country of labourers, and in a great part stocks the city with beggars, and starves some in winter that are ashamed to beg." *Essay about the Poor, Manufacturers, &c.*, p. 9.

⁴ *Children's Employment Commission, Fifth Report*, p. 272, n. 31.

employed,' and when these changes have their natural effect upon the way in which wholesale trade is conducted.' But, for all that, as the capitalists have admitted again and again, capital never becomes reconciled to such changes except "under the pressure of a general Act of Parliament" for the compulsory regulation of the hours of labour.

9. THE FACTORY ACTS. SANITARY AND EDUCATIONAL CLAUSES OF THESE ACTS. EXTENSION OF THE FACTORY ACTS TO THE WHOLE OF ENGLAND.

Factory legislation, the first methodical and purposive reaction of society upon the uncontrolled and spontaneous development of its process of production, is, as we have seen, a no less inevitable product of large-scale industry than are cotton yarn, self-actors, and the electric telegraph. Before we proceed to consider the general extension of the Factory Acts in England, it will be well to refer to certain clauses in the British Factory Acts which do not relate to the hours of work.

Apart from their wording, which makes it easy for the capitalists to evade them, the sanitary clauses are extremely meagre in their scope, being restricted to provisions for the whitewashing of the walls, for ensuring cleanliness in certain other matters, for ventilation, and for protection

* Thus the evidence given by the representatives of certain Bradford export houses is to the following effect: "Under these circumstances, it seems clear that no boys need be worked longer than from 8 a.m. to 7 or 7.30 p.m., in making up. It is merely a question of extra hands and extra outlay. If some masters were not so greedy, the boys would not work late; an extra machine costs only £14-15 (£25) much of such overtime as does occur is to be referred to an insufficiency of appliances and a want of space." *Children's Employment Commission, Fifth Report*, p. 171, ss. 31, 36, and 38.

* A London factory owner, who, moreover, looks upon the compulsory regulation of the working day as a protection of the workers against the factory owners, and of the factory owners themselves against wholesale traders, states: "The pressure in our business is caused by the shippers, who want, e.g., to send the goods by sailing vessel so as to reach their destination at a given season, and at the same time want to pocket the difference in freight between a sailing vessel and a steamship, or who select the earlier of two steamships in order to be in the foreign market before their competitors." *Same Report*.

† "This could be obviated", says a factory owner, "at the expense of an enlargement of the works under the pressure of a general Act of Parliament." *Same Report*, p. X, s. 38.

against dangerous machinery. In Book Three, we shall return to consider the factory owners' strenuous opposition to those clauses which compelled them to spend a little money upon protecting the limbs of their workpeople—an opposition that throws once more a glaring light upon the free-trade dogma that, in a society where antagonistic interests are at work, every one favours the welfare of the community when he seeks to promote his own personal advantage. One example will suffice. The reader is aware that during the last twenty years the flax industry in Ireland has been greatly extended, and that therewith there has been an increase in the number of scutching mills in that country. In 1864, there were about eighteen hundred of these mills. Year by year, in the autumn and the winter, numbers of workers, for the most part women and young persons, the sons, the daughters, and the wives of the neighbouring tenant farmers, persons quite unacquainted with machinery, are withdrawn from field labour in order to feed the rollers of the scutching mills with flax. The accidents, both as regards number and severity, are unprecedented in the history of machinery. In one scutching mill at Kildinan, near Cork, in the period from 1852 to 1856, there were six fatal accidents and sixty mutilations, all of which might have been prevented by the simplest appliances and at the cost of a few shillings. Dr. W. White, the certifying surgeon for the factories at Downpatrick, states in his official report of December 15, 1865: "The serious accidents at the scutching mills are of the most fearful nature. In many cases a quarter of the body is torn from the trunk, and either involves death, or a future of wretched incapacity and suffering. The increase of mills in the country will, of course, extend these dreadful results, and it will be a great boon if they are brought under the legislature. I am convinced that by proper supervision of scutching mills a vast sacrifice of life and limb would be averted."¹

How could the essential character of the capitalist method of production be better shown than it is shown by the need for forcing upon it, by Acts of Parliament, the simplest appliances for maintaining cleanliness and health? In the potteries, the Factory Act of 1864 has led to the whitewashing and cleaning of more than two hundred workshops, "after a period of abstinence from any such

¹ *Cp. ibid.*, p. XV, n. 72.

cleansing in many cases of twenty years, and, in some, entirely" [such is the nature of capitalist "abstinence"!], "in which were employed 27,800 artisans hitherto breathing through protracted days and often nights of labour a mephitic atmosphere, and which rendered an otherwise comparatively innocuous occupation pregnant with disease and death." The Act has improved the ventilation very much.* At the same time, the working of this part of the Factory Act has shown convincingly that the very nature of the capitalist method of production prevents a reasonable improvement beyond a certain point. I have repeatedly mentioned that British medical practitioners are unanimous in declaring that an allowance of 500 cub. ft. of airspace per person is a barely sufficient minimum in places where continuous work is carried on. Now the Factory Acts, by their compulsory provisions, indirectly hasten the transformation of small workshops into factories, thus indirectly attacking the proprietary rights of the smaller capitalists and ensuring a monopoly to the great ones. If, therefore, it were made obligatory to provide proper airspace for each workman in every workshop, thousands of small employers would be expropriated at one blow. The very root of the capitalist method of production, the self-expansion of capital (whether large-scale or small-scale) by the "free" purchase and consumption of labour power, would be cut. Consequently, factory legislation finds its way into a blind alley where this question of 500 cub. ft. of airspace is concerned. The sanitary authorities, the industrial enquiry commissioners, the factory inspectors, one and all harp on the need for insisting upon the provision of a 500 cub. ft. minimum, and upon the impossibility of making the capitalists accept this reform. Substantially, therefore, they declare that consumption and other lung diseases among the workpeople are necessary conditions for the very existence of capital.†

* *Reports of Inspectors of Factories*, October 31, 1863, p. 117.

† It has been found by experiment that in an average breath drawn by a person in average health, about 25 cub. ins. of air are consumed, and that about twenty breaths are taken each minute. The air consumption of an individual must therefore amount to 750,000 cub. ins., or 425 cub. ft. per day of 24 hours. We know, moreover, that air which has been once breathed cannot serve the purposes of the animal economy again until it has been cleaned in nature's great workshop. According to the experiments of Valentin

Although the education clauses of the Factory Acts go a very little way, at least they embody a proclamation that the giving of elementary instruction is to be a necessary accompaniment of child labour.¹ The success of the Act in this respect gave the first proof that it is possible to combine education and physical culture² with manual labour; and, on the other hand, to combine manual labour with education and physical culture. By questioning the schoolmasters, the factory inspectors soon discovered that the factory children, although they received only half as much instruction as the regular day scholars, learned quite as much and often more. "This can be accounted for by the simple fact that, with only being at school for one half of the day, they are always fresh, and nearly always ready and willing to receive instruction. The system on which they work, half manual labour and half school, renders each employment a rest and a relief to the other; consequently, both are far more congenial to the child, than would be the case were he kept constantly at one. It is quite clear that a boy who has been at school all the morning cannot (in hot weather particularly) cope with one who comes fresh and bright from his work."³ Further information

and Brunner, it appears that a healthy man exhales about 1500 cub. ft. of carbonic acid per hour. This means that the equivalent of about 8 ozs. of solid carbon is given off by the lungs in 24 hours. Huxley writes: "Every man should have at least 800 cub. ft."

¹ According to the English Factory Act, parents cannot send children under fourteen years of age to work in "controlled" factories, unless at the same time allowing them to receive elementary education. The factory owner is responsible for seeing that the law shall be enforced. "Factory education is compulsory, and it is a condition of labour." *Reports of Inspectors of Factories*, October 31, 1885, p. 111.

² As to the advantageous results of combining physical culture (and drilling in the case of boys) with compulsory education for factory children and pauper scholars, see N. W. Senior's speech at the Seventh Annual Congress of the National Association for the Promotion of Social Science, *Report of Proceedings*, etc., London, 1885, pp. 63 and 64; also *Reports of Inspectors of Factories*, October 31, 1885, pp. 118, 119, 120, 126 et seq.

³ *Reports of Inspectors of Factories*, October 31, 1885, p. 118.—An owner of a silk factory testifies to the Children's Employment Commissioners: "I am quite sure that the true secret of producing efficient workpeople is to be found in uniting education and labour from a period of childhood. Of course the occupation must not be too severe, nor irksome or unhealthy, but of the advantage of the union I have no doubt. I wish my own children could have some work as well as play to give variety to their schooling." *Children's Employment Commission, Fifth Report*, p. 52, n. 35.

will be found in Senior's speech at the Social Science Congress in Edinburgh in the year 1863. He shows there, among other things, how the monotonous and needlessly long school day for children of the upper and middle classes uselessly adds to the labour of the teacher, "while he not only fruitlessly, but absolutely injuriously, wastes the time, health, and energy of the children".¹ As we can learn in detail from a study of the life work of Robert Owen, the germs of the education of the future are to be found in the factory system. This will be an education which, in the case of every child over a certain age, will combine productive labour with instruction and physical culture, not only as a means for increasing social production, but as the only way of producing fully developed human beings.

We have seen that large-scale industry, through the technical developments attendant on its growth, makes an end of the manufacturing division of labour, in which each man is tied for life to a single detail operation. But large-scale industry, in its capitalist form, reproduces this division of labour in a yet more monstrous shape, inasmuch as, in the factory proper, the worker is transformed into a conscious appendage of a machine that performs a partial operation; whilst elsewhere the like evils occur sporadically, thanks to the scattered use of machinery and machine work.²

¹ Senior, *op. cit.*, p. 66.—A comparison between Senior's speech of 1863 and his philippic against the Factory Act of 1833; or a comparison of the views of the congress above referred to with the fact that in certain country districts of England poor parents are forbidden, on pain of death from starvation, to educate their children—will suffice to show how modern industry, when it has attained a certain level of development, is capable of revolutionising people's minds thanks to the revolution it brings about in the method of production, and in the social relations of production. For instance, Mr. Staal reports that in Somersetshire, when a poor person claims parish relief, he is often compelled to withdraw his children from the school. Mr. Wollerton, the clergyman at Feltham, also tells us of cases in which relief was refused to certain families "because they were sending their children to school."

² Wherever handicraft machines, driven by the power of human muscles, come into competition directly or indirectly with highly developed machinery (this meaning machinery that is driven by mechanical power), there occurs a great metamorphosis in respect of the worker who drives the machine. Originally, the steam-engine replaced this worker, but now he has to replace a steam-engine. The overstrain of his labour power therefore attains monstrous proportions, and it is especially persons of tender years who are exposed to such torture. For instance, Commissioner Long

and in part owing to the introduction of the labour of women and children and of unskilled labour as a new foundation for the division of labour.

The antagonism between the manufacturing division of labour, on the one hand, and the essential nature of large-scale industry, on the other, now discloses itself plainly. One way in which this antagonism becomes manifest is in the terrible fact that a large proportion of the children employed in modern factory work and in modern manufactures are, from their earliest years, tied to the simplest manipulations, and are exploited year after year without learning any occupation which will subsequently make them of use in the same manufacture or factory occupation. For instance, in the English book-printing trade, there was in former days a system corresponding to that which obtained in the old manufactures and handicrafts, in accordance with which apprentices passed on by degrees from easy to comparatively difficult work. They learned the whole trade, until they were fully equipped as printers. Learning to read and write was an essential part of their craft training. All this has been altered by the introduction of machine printing. It employs two kinds of workers: one grown up, a tender (machine minder); the other, the boys, mostly from eleven to seventeen years of age, whose sole occupation is to spread the sheets of paper under the machine, or to take the printed sheets away from it. They perform this weary task, in London especially, for fourteen, fifteen, or sixteen hours at a stretch, during several days of the week, and often for thirty-six hours at a stretch, with only two hours' rest for meals and sleep!¹ Many of them are unable to read; and they are, as a rule, little better than savages, quite abnormal creatures. "To qualify them for the work which they have to do, they require no intellectual training; there is little room in it for skill, and less for judgment; their wages, though rather high for boys, do not increase proportionately as they grow up, and the

found that in Coventry and its neighbourhood boys of from ten to fifteen years of age were employed in driving the ribbon looms, not to mention younger children which had to drive smaller machines. "It is extraordinarily fatiguing work. The boy is a mere substitute for steam-power." *Children's Employment Commission, Fifth Report, 1885, p. 114, n. 4.*—The same part of the report contains evidence regarding the murderous results of "this system of slavery".

¹ *Op. cit.*, p. 3, n. 24.

majority of them cannot look for advancement to the better paid, the more responsible, post of machine minder, because, while each machine has but one minder, it has at least two, and often four, boys attached to it.¹ As soon as they get too old for a boy's work, at latest therefore when they are seventeen, they are discharged from the printing establishment—to swell the ranks of the criminal classes. Attempts to find employment for them in other fields are frustrated by their ignorance, their brutality, their mental and bodily degradation.

What applies to the manufacturing division of labour in the interior of the workshop, applies likewise to the division of labour in the interior of society. As long as handicraftsmanship and manufacture form the general foundation of social production, the allotting of the producer to one branch of production exclusively, the breaking-up of the primary multifariousness of his occupation,² is a necessary step in evolution. On this foundation, and as the fruit of experience, each particular branch of production assumes the appropriate technical form; gradually perfects it; and, when a certain degree of maturity has been attained, becomes quickly crystallised in that form. What induces change here and there is, in addition to the supply of new kinds of raw material by commerce, a gradual change in the instruments of labour. Once the form which experience shows to be most suitable has been acquired, it becomes petrified, as it were, this being shown by the way in which it is often handed down from one generation to another for thousands of years. A characteristic feature of this development is that, on into the eighteenth century, the various crafts were termed "mysteries",³ into whose secrets

¹ *Op. cit.*, p. 7, n. 60.

² "In some parts of the Highlands of Scotland, not many years ago, every peasant, according to the *Statistical Account*, made his own shoes of leather tanned by himself. Many a shepherd and cottar too, with his wife and children, appeared at church in clothes which had been touched by no hands but their own, since they were shorn from the sheep and worn in the field. In the preparation of these, it is added, scarcely a single article had been purchased, except theawl, needle, thrackle, and a very few parts of the ironwork employed in the weaving. The dyes, too, were chiefly extracted by the women from trees, shrubs, and herbs." *Dugald Stewart's Works*, Hamilton's edition, vol. VIII, pp. 327-328.

³ In Eusebe Boylston's famous work, *Levens der uitliera*, we are told that a journeyman on being admitted among the master craftsmen

some but initiates could penetrate. Large-scale industry has torn away the veil which used to hide from human beings their own social process of production, and which used to make enigmas of the various branches of production that had spontaneously developed—enigmas, not only to outsiders but even to initiates. The principle it pursues, in accordance with which each process is resolved into its constituent elements, regardless of any relation to the manipulations of a human artificer, has created the modern science of technology. The multifarious, apparently disconnected and petrified forms of the social process of production were metamorphosed into deliberate and purposive special applications of natural science, each of them being systematically designed to attain the desired useful result. Technology likewise discovered the few basic forms of motion, which, despite the diversity of the implements used, are necessarily assumed by every productive activity of the human body; just as the science of mechanics discerns in the utmost complications of machinery, nothing more than the perpetual repetition of the simple mechanical powers.

Modern industry never regards or treats the extant form of a productive process as definitive. Its technical basis is, therefore, revolutionary; whereas the technical basis of all earlier methods of production was essentially conservative.¹ Through the instrumentality of machinery, chemical

had to swear, "to love his brethren with brotherly love, to support them in their respective trades, not wilfully to betray the secrets of the trade, and, besides, in the interests of all, not to recommend his own wares by calling a purchaser's attention to defects in the articles made by others".

¹ "The bourgeoisie cannot exist without incessantly revolutionising the instruments of production; and, consequently, the relations of production; and, therefore, the totality of social relations. Conversely, for all earlier industrial classes, the preservation of the old methods of production was the first condition of existence. That which characterises the bourgeois epoch in contradistinction to all others is a continuous transformation of production, a perpetual disturbance of social conditions, everlasting insecurity and movement. All stable and stereotyped relations, with their attendant traits of ancient and venerable prejudices and opinions, are swept away, and the newly formed becomes obsolete before it can petrify. All that has been regarded as solid, crumbles into fragments; all that was looked upon as holy, is profaned; at long last, people are compelled to gaze open-eyed at their position in life and their social relations." F. Engels and Karl Marx, *Manifesto of the Communist Party*, London, 1848.—English translation by Edin and Cedar Paul, London, 1919.

processes, and other methods, modern industry, changing the technical basis of production, changes therewith the functions of the workers and the social combinations of the labour process. At the same time, no less continuously, it transforms the division of labour within society, incessantly shifting masses of capital and masses of labour from one branch of production to another. From its very nature, therefore, large-scale industry gives rise to changes in work, to a flux of functions, to a many-sided mobility of the worker. On the other hand, in its capitalist form, it reproduces the old division of labour and the ossified particularisations of that division. We have seen how this inherent contradiction robs the worker of rest, fixity, security of existence, threatening to deprive him simultaneously of the means of labour and of the means of life,¹ and to render superfluous, not only the detail function he performs, but the man himself. We have also seen how this contradiction works itself out disastrously in the incessant sacrifice of holocausts of workers, in the reckless squandering of labour power, and in the devastations of social anarchy. Such is the negative side. But if, on the one hand, incessant changes of work impose themselves as an overriding law of nature, operating with the blindly destructive energy of such a law when its working encounters obstacles everywhere;² on the other hand, large-scale industry, through its catastrophes, imposes the necessity that, as a matter of life or death, changes in work and the utmost possible versatility of the workers shall be recognised as general laws of social production, so that production must be adapted to the normal functioning of these laws. Under large-scale industry, it

¹ "You take my life,
When you do take the means whereby I live."

Shakespeare, *Merchant of Venice*,
Act IV., Scene 1, ll. 371-372.

² A French workman, on his return from San Francisco, writes as follows: "I never could have believed myself capable of working at the various occupations I was employed on in California. I was absolutely convinced that I was fit for nothing but letter-press printing. . . . Once in the midst of this world of adventurers who change their occupations as often as they change their shirts, I did the same things as the others. Since mining did not pay well enough, I left it for the town, where, in turn, I became typesetter, slater, plumber, etc. Having thus found out that I am fit for any sort of work, I feel less like a skilfish and more like a man." C. A. Corbon, *De l'enseignement professionnel*, second edition, Paris, 1898, p. 30.

also becomes a life-and-death matter that the monstrosity of an unhappy reserve army of labour kept at the disposal of capital for its varying needs in the way of exploitation, shall be replaced by the perfect adaptability of the individual human being to the changing demands for different kinds of labour; so that the detail worker, who has nothing more to perform than a partial social function, shall be superseded by an individual with an all-round development, one for whom various social functions are alternative modes of activity. Factors of this metamorphosis, factors which are a natural growth upon the foundation of large-scale industry, are polytechnic and agricultural schools; other factors are schools of craft training in which the children of the workers receive specialised instruction in technology and in the practical use of the various instruments of production. Although the Factory Acts, representing primary concessions wrung from capital, are content to combine elementary instruction with factory work, there can be no doubt that the inevitable conquest of political power by the working class will be followed by a movement in which technological instruction, both theoretical and practical, will win its place in the labour schools. Nor is there any doubt that the capitalist form of production; and the politico-economical labour conditions appropriate to that form of production, are diametrically opposed to all such revolutionary ferment, and to their aim—the abolition of the old division of labour. But the evolution of the contradictions within a historical form of production is the only historical way in which these contradictions can be resolved, and a new form come into being. "Let the cobbler stick to his last" (a gem of handicraft wisdom), became an utter absurdity from the moment when a watchmaker, Watt, invented the steam-engine; a barber, Arkwright, the throttle; and a working jeweller, Fulton, the steamship.¹

In so far as factory legislation regulates the labour in factories, manufactories, etc., this appears primarily to be

¹ As early as the end of the seventeenth century, John Bellers (a phenomenal figure in the history of political economy) clearly realised the necessity for abolishing the present system of education and the present mode of the division of labour, which create hypertrophy and atrophy at the opposite poles of society. He writes: "An idle learning being little better than the learning of idleness. . . . Bodily labour, it's a primitive institution of God. . . . Labour being as proper for the body's health as eating is for its living; for

nothing more than an interference with capital's right to exploit. On the other hand, any regulation of the so-called domestic industry¹ implies an obvious and direct interference with parental authority, and this was a step which the tenderhearted British parliament was long reluctant to take. But the force of circumstances compelled it, in the end, to recognise that large-scale industry, which broke up the economic foundations of the old family system and that of the family labour appropriate to that system, was itself sweeping away the old family relations. The rights of children had to be proclaimed. In the official report of the Children's Employment Commission of 1866, we read: "It is unhappily, to a painful degree, apparent throughout the whole of the evidence, that against no persons do the children of both sexes so much require protection as against their parents." The system of unrestricted exploitation of child labour in general and of so-called home work in particular is "maintained only because the parents are able, without check or control, to exercise this arbitrary and mischievous power over their young and tender offspring. . . . Parents must not possess the absolute power of making their children mere machines to earn so much weekly wage. . . . The children and young persons, therefore, in all such cases, may justifiably claim from the legislature, as a natural right, that an exemption should be secured to them, from what destroys prematurely their physical strength, and lowers them in the scale of intellectual and moral beings."² But it was not the misuse of parental authority which gave rise to the direct or indirect exploitation of immature labour power by capital. On the contrary, it was the capitalist method of exploitation which, by sweeping away the appropriate economic basis of parental

what pains a man saves by ease he will find in disease. . . . Labour adds oil to the lamp of life, when thinking inflames it. . . . A childish silly employ' [a foreshadowing protest against the *Flansdowns* and their modern imitations] 'leaves the children's minds silly'. *Proposals for Raising a College of Industry of all Useful Trades and Husbandry*, London, 1696, pp. 13, 14, and 18.

¹ This sort of labour goes on mostly in small workshops, as we have seen in the hosiery and straw-plaiting trades. In fuller detail, it could be studied in the metal manufactures of Sheffield, Birmingham, etc.

² *Children's Employment Commission, Fifth Report*, p. XXV, n. 16a, and *Second Report*, p. XXXVIII, nn. 183 and 182, p. XXXV n. 191.

authority, transformed that authority into an abuse. However terrible, however repulsive, the break-up of the old family system within the organism of capitalist society may seem; none the less, large-scale industry, by assigning to women, and to young persons and children of both sexes, a decisive role in the socially organised process of production, and a role which has to be fulfilled outside the home, is building the new economic foundation for a higher form of the family and of the relations between the sexes. I need hardly say that it is just as stupid to regard the Christo-Teutonic form of the family as absolute, as it is to take the same view of the classical Roman form, or of the classical Greek form, or of the Oriental form—which, by the by, constitute a historically interconnected developmental series. It is plain, moreover, that the composition of the combined labour personnel out of individuals of both sexes and various ages—although in its spontaneously developed and brutal capitalist form (wherein the worker exists for the process of production instead of the process of production existing for the worker) it is a pestilential source of corruption and slavery—under suitable conditions cannot fail to be transformed into a source of human progress.*

Factory legislation began as an exceptional law applied to mechanical spinning and weaving, the first fruits of machine industry. The need for the development of such legislation into a more general law applying to all social production arises, as we have seen, from the historical process of the evolution of large-scale industry, as the outcome of which the traditional forms of manufacture, handicraft, and domestic industry are revolutionised: manufacture continually developing into factory production, handicraft continually becoming transformed into manufacture; and the regions of handicraft and domestic industry becoming, in an amazingly short space of time, dens of misery in which capitalist exploitation has free play for the wildest excesses. There are two circumstances which prove the final determinants of the extension of factory legislation. First of all, there is the ever-renewed experience that capital, as soon as it has been subjected to State control at a few isolated points of the social periphery, seeks compensation

* "Factory labour may be as pure and as excellent as domestic labour, and perhaps more so." *Reports of Inspectors of Factories*, October 31, 1865, p. 127.

all the more vigorously at other points.¹ The second determinant is the urgent demand of the capitalists themselves for the equalisation of the conditions of competition, this implying a demand for the establishment of generally applicable limits to the exploitation of labour.² In this connexion, let us listen to two heart-rending cries. Messrs. Cocksley of Bristol, nail-and-chain makers, spontaneously introduced the regulations of the Factory Act into their business. "As the old irregular system prevails in neighbouring works, the Messrs. Cocksley are subject to the disadvantage of having their boys enticed to continue their labour elsewhere after 6 p.m. 'This', they naturally say, 'is an injustice and loss to us, as it exhausts a portion of the boy's strength, of which we ought to have the full benefit.'"³ Mr. J. Simpson, paper-box-and-bag maker, London, informs the commissioners of the Children's Employment Commission that he will sign any petition on behalf of legislative interference. "As it was, he always felt restless at night, when he had closed his place, lest others should be working later than him and getting away his orders."⁴ Summarising the evidence on this matter, the Children's Employment Commission declares: "It would be unjust to the larger employers that their factories should be placed under regulation, while the hours of labour in the smaller places in their own branch of business were under no legislative restriction. And to the injustice arising from the unfair conditions of competition, in regard to hours, that would be created if the smaller places of work were exempt, would be added the disadvantage to the larger manufacturers, of finding their supply of juvenile and female labour drawn off to the places of work exempt from legislation. Further, a stimulus would be given to the multiplication of the smaller places of work, which are almost invariably the least favourable to the health, comfort, education, and general improvement of the people."⁵

¹ *Op. cit.*, pp. 27 and 32.

² A mass of information upon the matter will be found in the *Reports of Inspectors of Factories*.

³ *Children's Employment Commission, Fifth Report*, p. X, n. 35.

⁴ *Ibid.*, p. IX, n. 28.

⁵ *Op. cit.*, p. 25, nn. 163-167.—As to the advantages of large-scale industries compared with small scale, see *Children's Employment Commission, Third Report*, p. 13, n. 144; p. 25, n. 123; p. 26, n. 25; p. 27, n. 140; etc.

In its final report, the Children's Employment Commission recommends that the application of the Factory Act should be extended to include more than 1,400,000 children, young persons and women, of whom about half are exploited in small-scale industry and in domestic industry.¹ In making this recommendation, the commissioners say: "But if it should seem fit to parliament to place the whole of that large number of children, young persons, and females under the protective legislation above adverted to, . . . it cannot be doubted that such legislation would have a most beneficent effect, not only upon the young and the feeble, who are its more immediate objects, but upon the still larger body of adult workers, who would in all these employments, both directly and indirectly, come immediately under its influence. It would enforce upon them regular and moderate hours; it would lead to their places of work being kept in a healthy and cleanly state; it would therefore husband and improve that store of physical strength on which their own wellbeing and that of the country so much depends; it would save the rising generation from that overexertion at an early age which undermines their constitutions and leads to premature decay; finally, it would ensure them—at least up to the age of 13—the opportunity of receiving the elements of education, and would put an end to that utter ignorance . . . so faithfully exhibited in the reports of our Assistant Commissioners, and which cannot be regarded without the deepest pain, and a profound sense of national degradation."²

In the speech from the throne on February 5, 1867, the Tory Cabinet announced that it had formulated the recom-

¹ The trades to be brought under the Act by this extension were the following: lace-making, stocking-weaving, straw-plaiting, the manufacture of wearing apparel with its numerous subdivisions, artificial-flower making, shoemaking, hatmaking, glove-making, tailoring, all metal works, from blast furnaces down to needleworks, etc., paper mills, glass works, tobacco-factories, india-rubber works, broom making (for weaving), hand-carpet-making, umbrella-and-parasol making, the manufacture of spindles and spoons, letter-press printing, bookbinding, manufacture of stationery (including paper bags, cards, coloured paper, etc.), toy-making, manufacture of jet ornaments, brick-making, silk manufacture by hand, Coventry weaving, salt works, tallow chandlers, cement works, sugar refineries, biscuit-making, various industries connected with timber, and other mixed trades.

² *Op. cit.*, p. XXV, n. 109.

recommendations of the industrial commission of inquiry in certain Bills.* A further experiment of twenty years' duration at the expense of the working class had been needed to get thus far. As early as the year 1840, a parliamentary commission had been appointed to enquire into the conditions of child labour. As Nassau W. Senior declares, its report (published in 1842) disclosed "the most frightful picture of avarice, selfishness, and cruelty on the part of masters and of parents, and of juvenile and infantile misery, degradation, and destruction ever presented. . . . It may be supposed that it describes the horrors of a past age. But there is unhappily evidence that those horrors continue as intense as they were. A pamphlet published by Hardwicke about two years ago states that the abuses complained of in 1842 are in full bloom at the present day. It is a strange proof of the general neglect of the morals and health of the children of the working class, that this report lay unnoticed for twenty years, during which the children, 'bred up without the remotest sign of comprehension as to what is meant by the term morals, who had neither knowledge, nor religion, nor natural affection', were allowed to become the parents of the present generation."<†

Meanwhile there had been a change in social conditions. Parliament did not dare to ignore the demands of the Commission of 1863 as the demands of the Commission of 1842 had been ignored. In 1864, therefore, when only a part of the reports of the Commission had been published, the earthenware industries (including the potteries), wall-paper making, matchmaking, cartridgemaking, percussion-cap making and fusilacutting were made subject to the Acts already in force in the textile industries. In the previously mentioned speech from the throne on February 5, 1867, the Tory Cabinet of the day announced the speedy introduction of Bills based upon the final recommendations

* The Factory Acts Extension Act was passed on August 12, 1867. It regulated all metal foundries, forges, and manufactures, including machine shops; furthermore, glass, paper, gutta-percha, caoutchouc, and tobacco manufactures, printing shops, bookbinding, and, finally, all workshops at which more than fifty persons were employed.—The Hours of Labour Regulation Act was passed on August 17, 1867. It regulates the smaller workshops and the so-called domestic industry. I shall come back to these laws, and to the new Mining Act of 1872, etc., in the second volume.

† Senior, *Social Science Congress*, pp. 55-58.

of the Commission, which had completed its labours in 1866.

On August 15, 1867, the Factory Acts Extension Act, and on August 21, 1867, the Workshops Regulation Act, received the royal assent. The former Act concerned large-scale industries, and the latter small-scale industries.

The Factory Acts Extension Act applies to blast furnaces, iron-and-copper-smelting works, foundries, machinemaking works, workshops concerned in the metal industry, gutta-percha works, paper mills, glass works, tobacco factories, letter-press printing and bookbinding establishments, and, in general, all industrial establishments of this kind in which fifty persons or more are simultaneously employed for not less than 100 days during the year.

To give an idea of the extent of the domain to which this Act applies, the following passages may be quoted from the interpretation clause of the Workshops' Regulation Act:

"Handicraft shall mean any manual labour exercised by way of trade, or for purposes of gain, or incidental to, the making of any article or part of an article, or in, or incidental to, the altering, repairing, ornamenting, finishing, or otherwise adapting for sale any article."

"Workshop shall mean any room or place whatever in the open air or under cover, in which any handicraft is carried on by any child, young person, or woman, and to which and over which the person by whom such child, young person, or woman is employed, has the right of access and control."

"Employed shall mean occupied in any handicraft, whether for wages or not, under a master or under a parent as herein defined."

"Parent shall mean parent, guardian, or person, having the custody of, or control over, any . . . child or young person."

Clause 7, which imposes a penalty for the employment of children, young persons, and women, in contravention of the Act, subjects to fines, not only the occupier of the workshop whether parent or not, but even "the parent of, or the person deriving any direct benefit from, the labour of, or having the control over, the child, young person, or woman."

The Factory Acts Extension Act, which deals with large-scale establishments, compares unfavourably with the

Factory Act by the introduction of a number of preposterous exceptions and numerous cowardly compromises with the capitalists.

The Workshops Regulation Act, a paltry measure in all its details, remained a dead letter in the hands of the urban and other local authorities to which its enforcement was entrusted. When, in 1871, parliament withdrew these powers from the local authorities and transferred them to the factory inspectors, more than 100,000 workshops and 300 brick works were, at one blow, added to the inspectors' field of supervision. However, although the inspectorial staff was already undermanned, its numbers were increased by no more than eight persons to cope with the extra work.¹

What strikes us, therefore, in this British legislation of the year 1867 is, on the one hand, the fact that the parliament of the ruling classes was constrained to accept, as a matter of principle, the adoption of such extensive and extraordinary measures against the excesses of capitalist exploitation; and, on the other hand, the hesitation, the reluctance, and the bad faith, with which it proceeded to the practical application of these measures.

The Inquiry Commission of 1862 also recommended a new regulation of the mining industry, an industry distinguished from all others by the fact that in it the interests of the landowners and those of the industrial capitalists march hand-in-hand. The conflict between the interests of these sections of the ruling class had favoured the introduction of factory legislation. The absence of such an antagonism suffices to explain the procrastination and the chicanery that have characterised attempts to legislate for the regulation of mines.

The Inquiry Commission of 1840 had made disclosures of so terrible a nature, disclosures which had created such a scandal throughout Europe, that parliament had to salve its conscience by the Mining Act of 1842, which was satisfied to prohibit underground work for women, and for children under ten years of age.

¹ The personnel of the inspectorial staff comprised two inspectors, two assistant inspectors, and forty-one subinspectors. Eight additional subinspectors were, as stated in the text, appointed in 1871. The total cost of administering the Acts in England, Scotland, and Ireland, amounted for the year 1871-1872 to no more than £23,347, inclusive of the law expenses incurred in the prosecution of offending employers.

Then, in 1866, came the Mines Inspection Act, which provided that mines should be inspected by public officials appointed for that specific purpose; and that boys between the ages of 10 and 12 years should not be employed underground unless they had a school certificate, or attended school for a certain number of hours each week. Owing to the ridiculously small number of inspectors provided for by the Act, owing to the meagreness of their powers, and owing to various other causes which will become apparent as we proceed, this Act remained a dead letter.

One of the latest Blue Books dealing with mines is the *Report from the Select Committee on Mines, together with . . . Evidence*, July 23, 1866. It was issued by a committee of the Lower House, which was authorised to summon and examine witnesses. It consists of a thick folio volume, in which the actual report comprises no more than five lines, to the effect that the committee has nothing to say, and that more witnesses must be examined!

The mode in which the witnesses are examined recalls the cross-examination in English law courts, where counsel try, by means of impudent and perplexing questions, to browbeat the witness, and to twist the words in his mouth. In the case of the Select Committee on Mines, the members of the committee are themselves the cross-examiners, and among them are the owners and exploiters of mines. The witnesses are working miners, coalminers for the most part. The farce is so characteristic of the spirit of capitalism, that a few extracts from the examination must be given. For the reader's convenience, I have classified the extracts, and I may remind him that in British Blue Books every question and every answer is numbered. All the witnesses whose evidence is quoted here were working coalminers.

I. *Employment of Boys of 10 Years and upwards in Mines.* In the mines the work, inclusive of going and returning, usually last 14 or 15 hours, sometimes even from 3, 4, and 5 o'clock a.m., till 5 and 6 o'clock p.m. (nn. 6, 432, 83). The adults work in two shifts, of eight hours each; but there is no alteration with the boys on account of the expense (nn. 80, 203, 204). The younger boys are chiefly employed in opening and shutting the ventilating doors in the various parts of the mine; the older ones are employed on heavier work, in carrying coal, etc. (nn. 132, 719, 1747). They work these long hours underground until their 18th or 22nd year,

when they are put to miners' work proper (n. 161). Children and young persons are at present worse treated, and harder worked than at any previous period (nn. 1663-1667). And now Hussy Vivian (himself an exploiter of mines) asks: "Would not the opinion of the workman depend upon the poverty of the workman's family?" Mr. Bruce: "Do you not think it would be a very hard case, where a parent had been injured, or where he was sickly, or where a father was dead, and there was only a mother, to prevent a child between 12 and 14 earning 1s. 7d. a day for the good of the family? . . . You must lay down a general rule? . . . Are you prepared to recommend legislation which would prevent the employment of children under 12 and 14, whatever the state of their parents might be?"—"Yes" (nn. 107-110). Vivian: "Supposing that an enactment were passed preventing the employment of children under the age of 14, would it not be probable that . . . the parents of children would seek employment for their children in other directions, for instance, in manufactures?"—"Not generally I think" (n. 174). Kinnaird: "Some of the boys are keepers of doors?"—"Yes."—"Is there not generally a very great draught every time you open a door or close it?"—"Yes, generally there is."—"It sounds a very easy thing, but it is in fact rather a painful one?"—"He is imprisoned there just the same as if he was in a cell of a gaol". Bourgeois Vivian: "Whenever a boy is furnished with a lamp cannot he read?"—"Yes, he can read, if he finds himself in candles. . . . I suppose he would be found fault with if he were discovered reading; he is there to mend his business, he has a duty to perform, and he has to attend to it in the first place, and I do not think it would be allowed down the pit" (nn. 139, 141, 143, 158, 160).

II. *Education*. The working miners want a law for the compulsory education of their children, as in factories. They declare the clauses of the Act of 1860, which require a school certificate to be obtained before employing boys of 10 and 12 years of age, to be quite illusory. The examination of the witnesses on this subject is truly droll. "Is it [the Act] required more against the masters or against the parents?"—"It is required against both I think."—"You cannot say whether it is required against one more than against the other?"—"No; I can hardly answer that question" (nn. 115, 116).—"Does there appear to be any desire on the

part of the employers that the boys should have such hours as to enable them to go to school?"—"No; the hours are never shortened for that purpose" (n. 137). Mr. Kinsland: "Should you say that the colliers generally improve their education; have you any instances of men who have, since they began to work, greatly improved their education, or do they not rather go back, and lose any advantage that they may have gained?"—"They generally become worse: they do not improve; they acquire bad habits; they get on to drinking and gambling and such like, and they go completely to wreck" (n. 211). "Do they make any attempt of the kind [for providing instruction] by having schools at night?"—"There are few collieries where night schools are held, and perhaps at those collieries a few boys do go to those schools; but they are so physically exhausted that it is to no purpose that they go there" (n. 454). "You are then", concludes the bourgeois, "against education?"—"Most certainly not; but," etc. (n. 443). "But are they [the employees] not compelled to demand them [school certificates]?"—"By law they are; but I am not aware that they are demanded by the employers."—"Then it is your opinion, that this provision of the Act as to requiring certificates, is not generally carried out in the collieries?"—"It is not carried out" (nn. 443, 444). "Do the men take a great interest in this question [of education]?"—"The majority of them do" (n. 717). "Are they very anxious to see the law enforced?"—"The majority are" (n. 718). "Do you think that in this country any law that you pass . . . can really be effectual unless the population themselves assist in putting it into operation?"—"Many a man might wish to object to employing a boy, but he would perhaps become marked by it" (n. 720). "Marked by whom?"—"By his employers" (n. 721). "Do you think that the employers would find any fault with a man who obeyed the law? . . ."—"I believe they would" (n. 722). "Have you ever heard of any workman objecting to employ a boy between 10 and 12, who could not write or read?"—"It is not left to the men's option" (n. 123). "Would you call for the interference of parliament?"—"I think that if anything effectual is to be done in the education of the colliers' children, it will have to be made compulsory by Act of Parliament" (n. 1634). "Would you lay that obligation upon the colliers only, of all the workpeople of Great Britain?"—"I came to speak

for the colliers" (n. 1636). "Why should you distinguish them [colliery boys] from other boys?"—"Because I think they are an exception to the rule" (n. 1638). "In what respect?"—"In a physical respect" (n. 1639). "Why should education be more valuable to them than to other classes of lads?"—"I do not know that it is more valuable; but through the overexertion in mines there is less chance for the boys that are employed there to get education, either at Sunday schools, or at day schools" (n. 1640). "It is impossible to look at a question of this sort absolutely by itself?" (n. 1644). "Is there a sufficiency of schools?"—"No, . . ." (n. 1646). "If the State were to require that every child should be sent to school, would there be schools for the children to go to?"—"No; but I think if the circumstances were to spring up, the schools would be forthcoming" (n. 1647). "Some of them [the boys] cannot read and write at all, I suppose?"—"The majority cannot. . . . The majority of the men themselves cannot" (nn. 703, 725).

(III. *Employment of Women.* Since 1842, women are no longer employed underground, but are occupied on the surface in loading the coal, etc., in drawing the tubs to the canals and railway waggons, in sorting, etc. Their numbers have considerably increased during the last three or four years (n. 1727). They are mostly the wives, daughters, and widows of the working miners, and their ages range from 12 to 50 or 60 years (nn. 645, 1779). "What is the feeling among the working miners as to the employment of women?"—"I think they generally condemn it" (n. 648). "What objection do you see to it?"—"I think it is degrading to the sex" (n. 649). "There is a peculiarity of dress?"—"Yes . . . It is rather a man's dress, and I believe in some cases, it drowns all sense of decency."—"Do the women smoke?"—"Some do."—"And I suppose it is very dirty work?"—"Very dirty."—"They get black and grimy?"—"As black as those who are down the mines." . . . "I believe that a woman having children (and there are plenty on the banks that have), cannot do her duty to her children (nn. 650-654, 701). "Do you think that those widows could get employment anywhere else, which would bring them in as much wages as that [from 8s. to 10s. a week]?" "I cannot speak to that" (n. 709). "You would still be prepared, would you" [flint-hearted fellow], "to prevent their obtaining a livelihood by these means?"—"I would" (n. 710). "What is the

general feeling in the district . . . as to the employment of women?"—"The feeling is that it is degrading; and we wish as miners to have more respect to the fair sex than to see them placed on the pit bank. . . . Some part of the work is very hard; some of these girls have raised as much as 10 tons of stuff a day" (n. 1715, 1717). "Do you think that the women employed about the collieries are less moral than the women employed in the factories?"—" . . . the percentage of bad ones may be a little more . . . than with the girls in the factories" (n. 1237). "But you are not quite satisfied with the state of morality in the factories?"—"No" (n. 1733). "Would you prohibit the employment of women in factories also?"—"No, I would not" (n. 1734). "Why not?"—"I think it a more honourable occupation for them in the mills" (n. 1735). "Still it is injurious to their morality, you think?"—"Not so much as working on the pit bank; but it is more on the social position I take it; I do not take it on its moral ground alone. The degradation, in its social bearing on the girls, is deplorable in the extreme. When these 400 or 500 girls become colliers' wives, the men suffer greatly from this degradation, and it causes them to leave their homes and drink" (n. 1736). "You would be obliged to stop the employment of women in the ironworks as well, would you not, if you stopped it in the collieries?"—"I cannot speak for any other trade" (n. 1737). "Can you see any difference in the circumstances of women employed in ironworks, and the circumstances of women employed above ground in collieries?"—"I have not ascertained anything as to that" (n. 1740). "Can you see anything that makes a distinction between one class and the other?"—"I have not ascertained that, but I know, from house to house visitation, that it is a deplorable state of things in our district. . . ." (n. 1741). "Would you interfere in every case with the employment of women where that employment was degrading?"—"It would become injurious, I think, in this way: the best feelings of Englishmen have been gained from the instruction of a mother. . . ." (n. 1750). "That equally applies to agricultural employments, does it not?"—"Yes, but that is only for two seasons, and we have work all the four seasons" (n. 1751). "They often work day and night, wet through to the skin, their constitution undermined and their health ruined."—"You have not inquired into that subject perhaps?"—"I have certainly

taken note of it as I have gone along, and certainly I have seen nothing parallel to the effects of the employment of women on the pit bank. . . . It is the work of a man, . . . a strong man" (nn. 1753, 1793, 1794). "Your feeling upon the whole subject is that the better class of colliers who desire to raise themselves and humanise themselves, instead of deriving help from the women, are pulled down by them?"—"Yes" (n. 1808). After some further crooked questions from these bourgeois, the secret of their "sympathy" for widows, poor families, etc., comes out at last. "The coal proprietor appoints certain gentlemen to take the oversight of the workings, and it is their policy, in order to receive approbation, to place things on the most economical basis they can, and these girls are employed at from 1s. up to 1s. 3d. a day, where a man at the rate of 2s. 6d. a day would have to be employed" (n. 1815).

IV. *Coroner's Inquests*. "With regard to coroner's inquests in your district, have the workmen confidence in the proceedings at these inquests when accidents occur?"—"No; they have not" (n. 306). "Why not?"—"Chiefly because the men who are generally chosen, are men who know nothing about mines and such like."—"Are not workmen summoned at all upon the juries?"—"Never but as witnesses to my knowledge."—"Who are the people who are generally summoned upon these juries?"—"Generally tradesmen in the neighbourhood; . . . from their circumstances they are sometimes liable to be influenced by their employers, . . . the owners of the works. They are generally men who have no knowledge, and can scarcely understand the witnesses who are called before them, and the terms which are used and such like."—"Would you have the jury composed of persons who had been employed in mining?"—"Yes, partly; . . . they [the workmen] think that the verdict is not in accordance with the evidence given generally" (nn. 361, 364, 366, 368, 371, 375). "One great object in summoning a jury is to have an impartial one, is it not?"—"Yes, I should think so."—"Do you think that the juries would be impartial if they were composed to a considerable extent of workmen?"—"I cannot see any motive which the workmen would have to act partially; . . . They necessarily have a better knowledge of the operations in connexion with the mine."—"You do not think there would be a tendency on the part of the workmen to

return unfairly severe verdicts?"—"No, I think not" (nn. 376, 379, 380).

V. *False Weights and Measures*. The workmen demand to be paid weekly instead of fortnightly, and by weight instead of by cubical contents of the tubs; they also demand protection against the use of false weights, etc. (n. 1071). "If the tubs were fraudulently increased, a man could discontinue working by giving 14 days' notice?"—"But if he goes to another place, there is the same thing going on there" (n. 1071). "But he can leave that place where the wrong has been committed?"—"It is general; wherever he goes, he has to submit to it" (n. 1072). "Could a man leave by giving 14 days' notice?"—"Yes" (n. 1073). And yet they are not satisfied!

VI. *Inspection of Mines*. Casualties from explosions are not the only things workmen suffer from (n. 234 et seq.). "Our men complained very much of the bad ventilation of the collieries; . . . the ventilation is so bad in general that the men can scarcely breathe; they are quite unfit for employment of any kind after they have been for a length of time in connexion with their work; indeed, just at the part of the mine where I am working, men have been obliged to leave their employment and come home in consequence of that; . . . some of them have been out of work for weeks just in consequence of the bad state of the ventilation where there is not explosive gas; . . . there is plenty of air generally in the main courses, yet pains are not taken to get air into the workings where men are working."—"Why do you not apply to the inspector?"—"To tell the truth there are many men who are timid on that point; there have been cases of men being sacrificed and losing their employment in consequence of applying to the inspector."—"Why; is he a marked man for having complained?"—"Yes."—"And he finds it difficult to get employment in another mine?"—"Yes."—"Do you think the mines in your neighbourhood are sufficiently inspected to ensure a compliance with the provisions of the Act?"—"No; they are not inspected at all; . . . the inspector has been down just once in the pit, and it has been going seven years. . . . In the district to which I belong there are not a sufficient number of inspectors. We have one old man more than 70 years of age to inspect more than 130 collieries."—"You wish to have a class of

subinspectors?"—"Yes" (nn. 234, 241, 251, 274, 275, 276, 293). "But do you think it would be possible for government to maintain such an army of inspectors as would be necessary to do all that you want them to do, without information from the men?"—"No, I should think it would be next to impossible."—"It would be desirable the inspectors should come oftener?"—"Yes, and without being sent for" (nn. 277, 280). "Do you not think that the effect of having these inspectors examining the collieries so frequently would be to shift the responsibility [?] of supplying proper ventilation from the owners of the collieries to the government officials?"—"No, I do not think that, I think that they should make it their business to enforce the Acts which are already in existence" (n. 285). "When you speak of subinspectors, do you mean men at a less salary, and of an inferior stamp to the present inspectors?"—"I would not have them inferior, if you could get them otherwise" (n. 294). "Do you merely want more inspectors, or do you want a lower class of men as an inspector?"—"A man who would knock about, and see that things are kept right; a man who would not be afraid of himself" (n. 295). "If you obtained your wish in getting an inferior class of inspectors appointed, do you think there would be no danger from want of skill, etc.?"—"I think not, I think that the government would see after that, and have proper men in that position" (n. 297). This kind of examination becomes at last too much even for the chairman of the committee, and he interrupts with the observation: "You want a class of men who would look into all the details of the mine, and would go into all the holes and corners, and go into the real facts; . . . they would report to the chief inspector, who would then bring his scientific knowledge to bear on the facts they have stated?" (nn. 298, 299). "Would it not entail very great expense if all these old workings were kept ventilated?"—"Yes, expense might be incurred, but life would be at the same time protected" (n. 331). A working miner objects to the 17th section of the Act of 1860; he says: "At the present time, if the inspector of mines finds a part of the mine unfit to work in, he has to report it to the mine owner and the home secretary. After doing that, there is given to the owner 30 days to look over the matter; at the end of 30 days he has the power to refuse making any alteration in the mine; but, when he refuses, the mine

owner writes to the home secretary, at the same time nominating five engineers, and from those five engineers named by the mine owner himself, the home secretary appoints one, I think, as arbitrator, or appoints arbitrators from them; now, we think in that case the mine owner virtually appoints his own arbitrator" (n. 581). Bourgeois examiner, himself a mine owner: "But . . . is this a merely speculative objection?" (n. 586). "Then you have a very poor opinion of the integrity of mining engineers?"—"It is most certainly unjust and inequitable" (n. 588). "Do not mining engineers possess a sort of public character, and do not you think that they are above making such a partial decision as you apprehend?"—"I do not wish to answer such a question as that with respect to the personal character of those men. I believe that in many cases they would act very partially indeed, and that it ought not to be in their hands to do so, where men's lives are at stake" (n. 589). This same bourgeois is not ashamed to put this question: "Do you not think that the mine owner also suffers loss from an explosion?" Finally, "Are not you workmen in Lancashire able to take care of your own interests without calling in the government to help you?"—"No" (n. 1042).

In the year 1865 there were 3217 collieries in Great Britain, and only 12 inspectors. A Yorkshire mineowner, in a letter to the "Times" of January 26, 1867, calculates that—quite apart from the fact that office work absorbs so much of the inspectors' time—it is only possible for each mine to be visited once every ten years. We need hardly wonder, therefore, that during recent years (especially in 1866 and 1867) there has been a steady increase in the number and severity of mining disasters, which sometimes lead to the sacrifice of from two to three hundred miners at once. Such are the beauties of "free" capitalist production!

Nevertheless, the Act of 1872, defective though it is, is the first to regulate the hours of labour of the children employed in mines, and the first to make the exploiters and mineowners more or less responsible for what are termed accidents.

The Royal Commission of 1867, appointed to enquire into the employment of children, young persons, and women in agricultural work, has published very important reports. Several attempts have been made to apply the

principles of factory legislation, in a modified form, to agriculture, but hitherto such attempts have been complete failures. Still, what I wish to draw attention to here is the existence of an irresistible tendency towards the general application of these principles.

The generalisation of factory legislation for the bodily and mental protection of the working class has become inevitable. Therewith, as previously indicated, is generalised the transformation of scattered labour processes conducted upon a small scale into combined labour processes conducted upon a large scale (upon a social scale), which involves the concentration of capital and the autocracy of the factory regime. These changes result in the destruction of all the antiquated and transitional forms in which the dominion of capital is still to some extent concealed, so that the rule of capital now becomes direct and conspicuous. But, at the same time, the generalisation of factory legislation generalises the direct struggle against capitalist rule. While enforcing uniformity, regularity, order, and economy, in the individual workshop, by limiting and regulating the hours of labour and thus greatly stimulating the advance of technique, it intensifies the anarchy and multiplies the catastrophes of capitalist production, increases the intensity of labour, and increases the competition between machinery and the worker. In the domains of petty industry and domestic industry, the generalisation of factory legislation destroys the last refuge of the "redundant population", and therewith destroys the sole remaining safety-valve of the whole social mechanism. By ripening the material conditions of production and the social combinations of the productive process, it ripens the contradictions and antagonisms of the capitalist form of production, thus simultaneously ripening the factors that tend to revolutionise the old society and the factors that tend to build a new one.*

* Robert Owen, the father of cooperative factories and stores (a man who, as already said, was far from sharing the illusions of his followers with regard to the significance of these isolated factors of transformation), not only set out from the factory system in his experiments, but declared this system to be, as far as theory was concerned, the starting-point of the social revolution. Herr Vissering, Professor of Political Economy in the University of Leyden, would seem to have had a suspicion of this when, in his *Handboek van politieke Staatshuishoudkunde*, 1860-1862, which reproduced all the platitudes of vulgar economy, he strongly favoured handicrafts

Not until a later stage of our investigation can we describe the revolution which large-scale industry brings about in agriculture and in the social relations of those engaged in agricultural production. At this juncture it will be enough, by way of anticipation, to point out briefly a few of the results of this revolution. While the use of machinery in agriculture is not exempt from many of the physical disadvantages to the worker which characterise the use of

as against the factory system.—[British factory legislation, with its mutually conflicting Factory Acts, Factory Extension Act, and Workshops' Act, formed so hopeless a legislative tangle that the situation at length became intolerable; and in 1878, therefore, there was enacted the Factory and Workshop Act of that year, a codification of all previous legislation upon the subject. Of course no attempt can be made here to give a detailed exposition of England's present industrial code. The following cursory remarks must suffice. The scope of the Act includes: 1. Textile mills. Here everything remains much as it was. Working time allowed for children over 10 years, $5\frac{1}{2}$ hours per day, or else 4 hours per day and Saturday off. For young persons and women, 10 hours on five days a week, and no more than $6\frac{1}{2}$ hours on Saturday. 2. Factories other than textile. Here regulations approximate more closely to those for textile factories than was formerly the case; but numerous exceptions favourable to the capitalists are still made, and in many cases these exceptions may actually be extended by special permission of the home secretary. 3. Workshops, whose definition remains much as it was. So far as children, young persons, or women are employed in them, workshops are assimilated with the factories of Class 2, but again with alleviations in matters of detail. 4. Workshops in which no children or young persons are employed, but only persons of either sex over 15 years of age. This class enjoys additional favours. 5. Domestic workshops, in which only members of the family are employed in the home of the family. Here the rules are still more elastic, and there is an additional obstacle to the enforcement of the Act in that the inspector must not enter rooms serving at the same time as homes without a special ministerial or magisterial order. Finally, there has been an unconditional surrender of straw-plaiting, lacemaking, and glovemaking, to the sphere of domestic industry. Still, despite shortcomings, this law, and the factory legislation of the Swiss Confederation, enacted on March 23, 1877, are by far the best of their kind. A comparison of the two codes is of especial interest because it reveals the advantages and disadvantages of the two different methods of legislation. British legislation works "historically", proceeding from case to case; whereas continental legislation, grounded upon the traditions of the French Revolution, works more by generalisation. Unfortunately the English industrial code is still, in great measure, a dead letter so far as its application to workshops is concerned, for there are not enough inspectors to carry it out.—Note by Friedrich Engels.]

machinery in the factories,* the effect of machinery in superseding the workers is more marked, and encounters less resistance, as we shall see subsequently in detail. In the counties of Cambridge and Suffolk, for instance, the area of cultivated land has been greatly extended during the last two decades, whereas during the same period the agricultural population has declined, not only relatively but absolutely as well. In the United States of North America it sometimes happens that agricultural machines replace the workers virtually but not absolutely; this meaning that they enable the producer to cultivate a larger area than before, while keeping the same number of workers occupied. In England and Wales, the number of persons engaged in the making of agricultural machinery was 1034 in the year 1861, at a time when the number of agricultural workers actually engaged in the use of steam-engines and working machines was only 1205.

In the domain of agriculture, the most revolutionary effect of large-scale industry is that it destroys the bulwark of the old society, the peasant, who is replaced by a wage worker. In this way the need for social transformations, and the oppositions, of the countryside are equated with those of the town. Irrational and old-fashioned methods of agriculture are replaced by scientific ones, based upon the deliberate application of an improved technique. The capitalist method of production completely severs the old bond of union between agriculture and manufacture, which were held together when both were in their infancy. At the same time, it creates the material requisites for a new and higher synthesis, a union of agriculture and industry, upon the basis of their antithetically elaborated forms. With the constantly increasing preponderance of urban population aggregated in the great centres, capitalist production increases, on the one hand, the mobility of society, while destroying, on the other, the interchange of material between man and the soil, that is to say the return to the soil of its constituents that are used by human

* An elaborate description of the machinery used in English agriculture will be found in Herr Haun's *Die landwirthschaftlichen Gerathe und Maschinen Englands*, second edition, 1898. In the sketch he gives of the evolution of English agriculture, Herr Haun is too uncritical in the way in which he follows the footsteps of Monsieur Léon de Lavergne.—(Of course the before-mentioned work is now out of date.—Friedrich Engels.)

beings in the form of food and clothing—a return which is the permanent natural essential for the maintenance of the fertility of the soil. Thus it simultaneously destroys the physical health of the urban worker and the mental welfare of the rural worker.¹ But, while thus destroying the natural and spontaneously developed system for the circulation of matter from the soil to human beings, and from human beings back to the soil, it necessitates the systematic restoration of such a circulation as a regulative law of social production, and its restoration in a form adequate to the full development of mankind. In agriculture, as in manufacture, the capitalist transformation of the process of production signifies, at the same time, the martyrdom of the producer; the instrument of labour becomes the means of subjugating, exploiting, and impoverishing the worker; the social combination and organisation of the labour process functions as an elaborate method for crushing the worker's individual vitality, freedom, and independence. The dispersion of the rural workers over large areas breaks down their powers of resistance, at the very time when concentration is increasing the powers of the urban operatives in this respect. In modern agriculture, as in urban industry, the increased productivity and the greater mobility of labour, are purchased at the cost of devastating labour power and making it a prey to disease. Moreover, every advance in capitalist agriculture is an advance in the art, not only of robbing the worker, but also of robbing the soil; every advance in the fertility of the soil for a given period of time, is simultaneously an advance towards the ruin of the permanent sources of this fertility. The greater the extent to which a country tends to start its development upon the foundation of large-scale industry (as does the United States, for instance), the more rapid is this process of destruction.² Capitalist production, therefore, is only

¹ "You divide the people into two hostile camps of plowish bores and emaciated dwarfs. Good heavens! A nation divided into agricultural and commercial interests calling itself sane, say, styling itself enlightened and civilized, not only in spite of, but in consequence of this monstrous and unnatural division." David Urquhart, *op. cit.*, p. 119.—This passage shows at once the strength and the weakness of a mode of criticism which is competent to judge and to condemn the present, but is not competent to understand it.

² Cf. Liebig, *Die Chemie in ihrer Anwendung auf Agricultur und Physiologie*, seventh edition, 1860, and especially, in the first volume.

able to develop the technique and the combination of the social process of production by simultaneously undermining the foundations of all wealth—the land and the workers.

his "Introduction to the Natural Laws of Agriculture". One of Liebig's immortal services has been that he has expounded the negative or destructive aspects of modern agriculture, and that he has done this from the outlook of natural science. Moreover, his historical sketch of the development of agriculture, though not free from serious errors, throws considerable light on the subject. It is, however, a matter for regret that he should venture on such haphazard utterances as the following: "By breaking up the soil more effectively, and by more frequent ploughing, the circulation of air in the interior of a porous soil is favoured, and the surface exposed to the action of the atmosphere is increased and renewed; yet it is easy to see that the increase in the yield of the land cannot be proportional to the labour spent on that land, for the former increases much less than the latter. This law", adds Liebig, "was first enunciated in the following terms by John Stuart Mill in his *Principles of Political Economy*, vol. I, p. 17: 'That the produce of land increases, other things being equal, in a diminishing ratio to the increase of labourers employed, is the universal law of agricultural industry.' This utterance is very remarkable, since Mill was ignorant of the reason for the law." Liebig, *op. cit.*, vol. I, p. 143 and footnote.—Be it noted that Mill, in the passage quoted by Liebig, erroneously formulates the law enunciated by Ricardo's school, for, since the "decrease of the labourers employed" kept even pace in England with the advance of agriculture, the law discovered in, and supposed to be valid for, England, could have no application to that country at all events.—But, apart from Liebig's wrong interpretation of the word "labourer", by which word he understands something very different from what is meant by political economists, it is certainly "very remarkable" that he should make Mr. John Stuart Mill the originator of a theory which was first published by James Anderson in Adam Smith's days, and was reiterated in various works down to the beginning of the nineteenth century; a theory which Malthus, a master of plagiarism (his whole theory of population is a shameless plagiarism), quoted in 1815; a theory which West developed simultaneously with Anderson, and independently of him; one which in the year 1827 was associated by Ricardo with the general theory of value; then made the round of the world as "Ricardo's theory", and in 1880 was popularised by James Mill, the father of John Stuart Mill; and which, finally, was reproduced by John Stuart Mill and others, as a commonplace of the schools. It is undeniable that John Stuart Mill owes his certainly "remarkable" authority almost exclusively to such tit-for-tats.

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As for history, Everyman's Library has been eclectic enough to choose its historians from every school in turn, including Gibbon, Grote, Finlay, Macaulay, Motley, and Prescott, while among earlier books may be noted the Venerable Bede and the Anglo-Saxon Chronicle. On the classic shelf too, there is a Livy in an admirable translation by Canon Roberts, and Cæsar, Tacitus, Thucydides, and Herodotus are not forgotten.

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daffodils

That come before the swallow darts, and take
The winds of March with beauty.

William Hazlitt's 'Table Talk' may help again to show the relationship of one author to another, which is another form of the Friendship of Books. His incomparable essay, 'On Going a Journey,' forms a capital prelude to Coleridge's 'Biographia Literaria'; and so throughout the long labyrinth of the Library shelves one can follow the magic clue in prose or verse that leads to the hidden treasury. In that way every reader becomes his own critic and Doctor of Letters. In the same way one may turn to the Byron review in Macaulay's *Essays* as a prelude to the three volumes of Byron's own poems, remembering that the poet whom Europe loved more than England did was, as Macaulay said, 'the beginning, the middle and the end of all his own poetry.' This brings us to the provoking reflection that it is the obvious authors and the books most easy to reprint which have been the signal successes out of the many hundreds in the series, for Everyman is distinctly proverbial in his tastes. He likes best of all an old author who has worn well

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